STUDY MATERIAL FOR B.SC FASHION TECHNOLOGY

APPAREL PRODUCTION AND QUALITY MANAGEMENT

SEMESTER – V

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PREPARED BY

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UNIT-I
QUALITY

Quality:

Quality the degree of excellence of something, often a high degree of it: Our Company guarantees the quality of our merchandise.Quality often refers to how good or bad something is the fabric was of the highest quality.

Quality is important to businesses but can be quite hard to define. A good definition of quality is: "Quality is about meeting the needs and expectations of customers". Customers want quality that is appropriate to the price that they are prepared to pay and the level of competition in the market.

Quality and its necessity:

To ensure the success of your company, quality must be maintained at all levels. Each product, service, process, task, activity or decision within an organization can be judged on the basis of quality. Quality management is critical to the growth and performance of a business. It is also a key resource in competing for client relations, striving to deliver a superior experience. Businesses can implement a set of procedures to ensure that their products meet the standards and operate at their best.The ultimate aim is to improve customer satisfaction and boost business growth.

Quality is not limited to the final product, it concerns all the processes, systems and people behind this outcome. It is always the pursuit of excellence ensuring that what your organization does is appropriate for the purpose, and not only remains that way, but continues to improve and outstrip competitors.

Companies should do everything in their power to support their competitors. Providing high-quality products and services is of the utmost importance. Quality Management System QMS is right, as it helps businesses maximize the costs and use of available resources.

Good management can improve the brand and reputation of the organization, protect it from risk, increase its efficiency, increase its profits and reduce waste, and position it for continued growth. While making staff and guests happier.

Inspection:

Inspection is the act of looking at something carefully, or an official visit to a building or organization to check that everything is correct and legal.On closer inspection her passport seemed legitimate, but on closer inspection, it was found to have been altered.

Inspection and its importance:

The importance of inspection in quality control lies in its pivotal role in ensuring that products and processes meet predefined standards, thereby contributing to the overall reliability and consistency of the supply chain. It involves systematic checks and measures to guarantee consistency and reliability. Maintaining high-quality standards is pivotal for a client's supply chain logistics business, enhancing customer satisfaction, reducing risks, and fostering trust.

Importance:

1. **Reduces Risks**

When getting products from Asia, there are certain well-known problems you need to consider in your supply chain planning. When it comes to the importance of inspection in quality control it includes things like receiving unexpected items, taking shortcuts in production, using lower-quality materials, getting work done in subpar factories, and having quality samples that don't match the final products. Quality control inspections help you avoid these issues.

2. **Saves Money**

Getting inspection and quality control in manufacturing in India might seem like an extra cost, but it saves you money in the long run. People may not like the idea of paying for inspections.

It turns out to be much more cost-effective than dealing with product recalls, fixing or redoing products, handling returns, and losing business. The emotional, physical, and monetary costs of these problems can be much higher than paying for inspections before shipping.

3. **Saves Time**

Time is an extremely important resource in every business. Time lost equals loss of opportunity and money. Many of the issues that occur in the supply chain result in people spending a significant amount of time resolving errors and miscommunications.

Besides, travel to and from locations to work with suppliers to resolve all such issues is very time-consuming. Quality control inspections allow companies and businesses to outsource some of that resource and help at a reasonable cost thus underlying the importance of inspection in quality control.

4. **Supplier Control**

Having inspectors in your factory allows you greater control over your supplier. Factory owners are significantly more conscientious when aware inspections could take place at any time. This reduces the incidence of lower quality, fraudulent, or defective work.

5. **Identifying Defects and Scrap**

This is the most basic requirement to understand the importance of inspection in quality control. Wear and tear and defects in parts are something that you must avoid at any cost. So, company's make sure that they leave no stone unturned and go for a thorough inspection of the product.

Sometimes supply chain specialists are also hired to ensure that the raw materials are up to the mark. If there are defects in the raw materials, quality issues are bound to arise in the finished products. It will make the entire production process inefficient and thereby, increase the defect rates.

6. **External Failures**

This is another advantage of quality control in supply chain management. A supply chain of poor quality will not provide the desired standard of products. In such instances, the products are highly likely to suffer damage during shipping and transportation.

Implementing quality control in manufacturing operations can significantly contribute to safeguarding the company's reputation. Through the involvement of quality control subcontractors, organisations are fostering positive relationships with their suppliers.

7. **Inspections**

Many companies deal with large quantities of defects or other forms of waste when it comes to the manufacturing process. There are no qualms that inspection does increase the operating cost. But its entire purpose is that there are no damaged products.

If quality control procedures and supplier relationship audits go through effective assessment, organisations do not need to employ someone for ongoing inspections on the manufacturing line. Quality control experts assist organisations in evaluating the changing preferences of consumers.

8. **Brand Protection**

A wise saying goes, "Trust is hard to earn but easy to lose." Offering top-notch products boosts customer happiness, loyalty, and trust. Happy customers not only come back but also spread the word about your brand. That is where the importance of inspection in quality control becomes more apparent. To keep this going, make sure your products meet or beat customer expectations. Many businesses have suffered because they forget this. Quality is crucial for keeping up and boosting your product and brand value. Brand protection is also dependent on the quality of materials.

9. **Toxic Materials**

It is important to pay attention to the quality of materials in the supply chain products. Toxic materials can harm the environment and eventhehealthofthepeople who directly come in contact.Therefore, understanding and complying with the importance of inspection in quality control of organisations and companies helps to take the necessary steps to protect customers from getting exposed to harmful and toxic materials.

Functions of inspection:

The important function of inspection is an essential aspect of quality control in manufacturing and other industries. It involves the process of checking and testing products to ensure they meet the required specifications and standards.

Verifying product quality:

Inspection ensures that products meet the required quality standards before they are shipped to customers.

Identifying defects:

Inspection helps in identifying defects and issues early on, thereby reducing the chances of expensive product recalls and repairs.

Reducing costs:

Inspection helps in reducing the costs associated with product recalls, repairs, and customer complaints.

Ensuring compliance:

Inspection ensures that products comply with regulatory and legal requirements.

Enhancing customer satisfaction:

Inspection helps in ensuring that products meet the customers' requirements, thereby increasing customer satisfaction.

Improving supplier performance:

Inspection helps in monitoring and improving supplier performance by providing feedback on their products.

Ensuring safety:

Inspection ensures that products are safe for use and free from any hazardous materials or components.

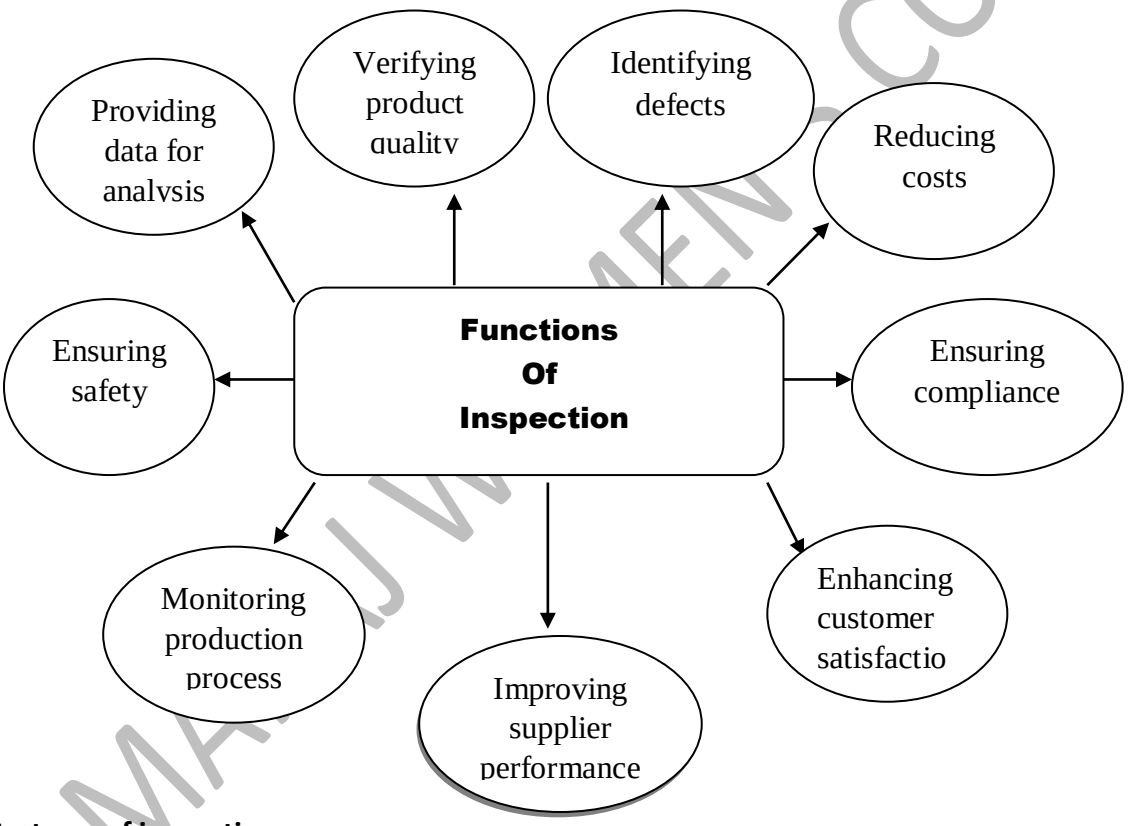
Monitoring production processes:

Inspection helps in monitoring production processes to ensure that they are efficient and effective.

Providing data for analysis:

Inspection provides data that can be used for analysis to identify trends and opportunities for improvement in the production process.

In conclusion, inspection plays a crucial role in ensuring quality control in manufacturing and other industries. Its functions range from verifying product quality to providing data for analysis.



Systems of inspection:

The 4-point system for fabric inspections is a standardized method used in the apparel and textile industry to evaluate the quality of fabrics. It is the most commonly used fabric inspection system in the industry. This system evaluates and grades fabrics, giving buyers and suppliers insight into the quality of their fabric.In this what a 4-Point System for Fabric Inspections is, and how it works as a tool for quality control.

The 4-Point System provides a means of defining defects according to their severity by assigning demerits or penalty points.

The system is under ASTM D5430-93, a standard test method for determining the tensile properties of fabrics. It is published by the American Society for Testing and Materials (ASTM) and is commonly used in the textile industry.

In the 4-point system, defects in both the warp/weft or course/wale directions of a fabric will be assigned penalty points using the following criteria:

Size of Defects	Penalty Points
Defects up to 3 inches	1
Defects > 3 inches ≤ 6 inches	2
Defects > 6 inches ≤ 9 inches	3
Defects > 9 inches	4

However, not all defects are equal. At Bureau Veritas, defects such as holes, dropped stitches, and torn selvage will be assigned 4 penalty points regardless of the size of the defects. No more than 4 points will be assigned to any one linear meter of yard of fabric.

10-point Fabric inspection system:

It is one of the Fabric inspection systems where a maximum of 10 penalty points can be awarded to one defect. This system was introduced in 1955 which was adopted by Textile Distributors and the National Federation of Textiles. This is the earliest inspection system and is designed to identify defects and assign each defect a value based on the severity of the defect.

In lengthwise/ warp way:

Size of Defect	Penalty Points
Up to 1 inch	1 Point
1 to 5 inches	3 Points
5 to 10 inches	5 Points
10 to 36 inches	10 Points

In Width wise / Weft way:

Size of defect	Penalty
Up to 1 inch	1 point
1 to 5 inches	3 points
5 inches to Half the Width	5 points
Half to full Width	10 points

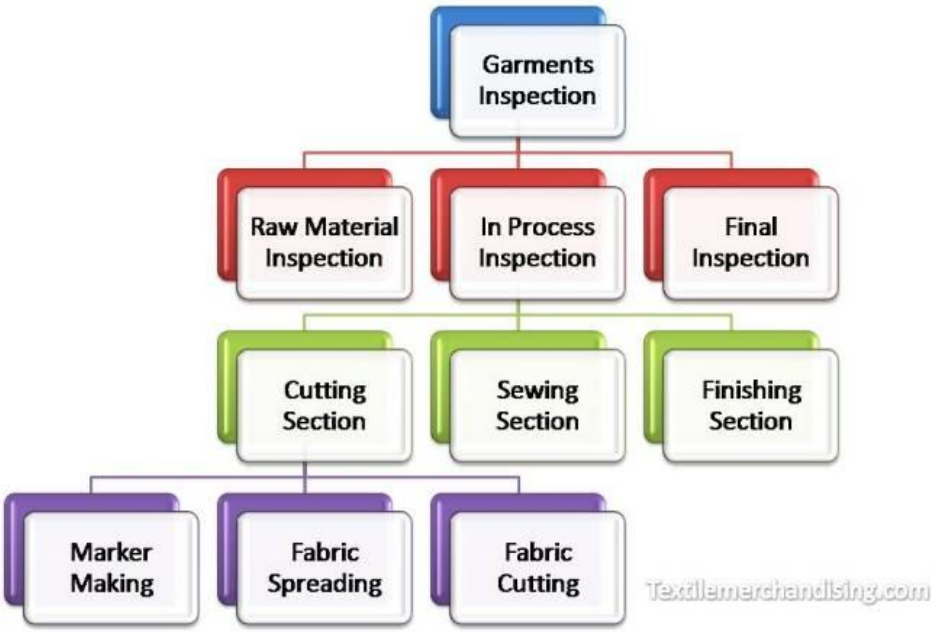
Advantages of the 10-Point system:

1. Oldest and most used in the woven finished fabric.
2. In its length of fabric is used and along the length of warp and weft defects are indicated.

Disadvantages of the 10-Point System:

1. It was difficult in practical use.
2. It has Width limitations.

Types of inspection:



The aim of garment inspection is to visually inspect articles at random from a delivery in order to verify their general conformity and appearance with instruction/description and/or sample received.**There are different stages of inspection are done in garments industry following by inspectors as requirement of consumers:**

A. Pre-Production Check (PPC)
B. Initial Production Check (IPC)
C. During Production Check (DuPRO)
D. Final Random Inspection (FRI)

A. Pre-Production Check (PPC):

This is done before production starts. Where then is a final verification of the material used; style, cut and workmanship of the garment or pre-production sample as per the customer requirements.

B. Initial Production Check (IPC):

This is done at the start of production where a first batch of garments is inspected; to distinguish possible discrepancies/variation and to allow for the necessary corrections to be made bulk production. The inspection is a preliminary stage covering mainly style and general appearance, workmanship, measurements, quality of fabrics, components, weight, color and/or printing.

C. During Production Check (DuPro):

This is done during production to ensure initial discrepancies/variations have been rectified. This inspection is in fact the follow -up of the initial production check and is generally carried out a few days after the initial inspection, especially if discrepancies have been detected at that time.

D. Final Random Inspection (FRI):

This is carried out when the production of the total quantity of an order or partial delivery is completed. A sample lot will be selected from the order and a percentage of the garments will be inspected, this percentage usually being stipulated by the buyer. The AQL sampling inspection may be applied or another inspection system designed by the buyer.

Hundred percent inspections:

In an operational process, 100% inspection is a check with verification of every single physical piece of work whose form is changed. In a functional process, it's a check with verification on every single element of information that moves through processes.

In its fullest implementation, the inspection is typically performed by separate quality inspectors, in addition to or instead of those performing the work. The goal with 100% inspection is to eliminate the delivery of non-specification-compliant products or services. 100% inspections are often driven by select situations and rationale, such as:

- Regulatory demands
- Agency contracts requiring it
- Life and safety drivers
- Elite product specifications attainable through no other route

Repeated quality problems that have left few options but "containment" in order impose expense thereby gaining management's attention in implementing sustainable countermeasures.

Sampling inspection:

Sampling inspections can be categorized into several groups based on the location where the inspection takes place, purpose of inspection, characteristics, and method. In addition to location or purpose-based categorization, including incoming inspection, shipment inspection, and delivery inspection, sampling inspections can also be distinguished depending on the products being handled, such as finished product inspection, semi-finished product inspection, parts inspection, and material inspection.

In sampling inspections, a percentage of the total received units are available for inspection.

With sampling inspections:

- Even if one sample in the lot fails the inspection, the entire lot is rejected.
- Similarly, if the samples selected for inspection passes the inspection, the entire lot is accepted.

On the contrary, when sampling is not enabled, each individual unit is accepted and rejected separately.

Comparison of 100% inspection and sampling inspection:

100% Inspection	Sampling Inspection
• Total cost of inspection is very high and at times it is prohibitive. • This inspection is subject to errors due to operator's fatigue, negligence and due to poor supervision by inspectors and results cannot be predicted with accuracy. • No Sampling error. • This method of inspection is not at all suitable for destructive testing.	• As volume of inspection is very low and hence total cost of inspection involved is low. • The sampling inspection is based on scientific sampling plan system and hence is free from such errors and results can be produced accurately. • As the method is based on sample drawn from the population, hence it is prone to sampling error. • Sampling inspection is the only way of inspecting for a destructive test.

UNIT-II

QUALITY CONTROL

Quality control in pattern making:

Pattern making today has become an easy job with the use of the computers. Now-a-days different softwares are available in the market to meet the needs of the manufacturers. The different softwares used are Gerber, Lectra, Tukatech ,OptiTex etc. These softwareshave made the job of the Pattern master easier. They have made the process of pattern making more economical and less time consuming.

Pattern-making softwares enable you to input your measurements and draft out a pattern. These softwares draft patterns to fit your measurements specifically, eliminating much fitting trial and error in the sewing room.A pattern can be made from a 3D form in just a few steps by using these softwares. An individual's measurements are collected from 3D body scanner. The measurements are used to create a virtual 3D model of the individual's body. The 3D to 2D software allows the user to define a garment surface in relation to the 3D body model. Once the garment surface is defined, the application automatically unwraps and outputs a 2D flat pattern in .dxf format.

Quality control in grading:

Pattern grading is the process of turning a sample size (sometimes referred as base size) into an additional smaller or larger size. Pattern grading is done using a size specification sheet. Grading does not create a new shape; it increases or decreases the size of the original shape of the garment.

- **SET CLEAR TOLERANCES FOR GARMENT MEASUREMENTS**

Pattern grading is a technique used to increase or decrease the size of a garment pattern according to the measurements in a given size chart. Pattern grading is the drafting process of enlarging or diminishing a style pattern into patterns for other sizes. The function of grading is to see that this is accomplished with proper fit for the other size without changing the style sense of the original model. This can be done manually or digitally using computerized pattern cutting software. These increments are referred to as garment grading rules. Each specific clothing market area and level has different grading rules. Through pattern grading, you can maintain the essence of the garment without altering the shape, fit, dimensions, design, or the balance of the article of clothing. With the use of pattern grading, it is possible to take one design and create alternate dimensions as the size of the dress changes.

Quality control in marking:

Marker is a thin paper which contains all the necessary pattern pieces for all sizes for a particular style of garments. It is made just before cutting and its purpose is to minimize the wastages of fabric. In case of marker making quality is very important factor. Though quality is a relative term.

Purposes of quality control in marker making:

The objectives of quality control in marker making can be summarized as:

1. To ensure the markers are made to a size ratio that gives the required quality and quantity per order by reducing the wastage of fabrics.
2. To ensure no garment part is missed in the marker and the marker is of comparable length and width of the fabric being laid.
3. To check notch or drill mark
4. Fabric width must be higher than marker width
5. Fabric length must be higher than marker length
6. Matching of green line
7. Check pattern size and dimension
8. Matching of check and stripe taking into consideration
9. Considering garments production plan
10. Cutting table length consideration
11. Pattern direction consideration

Quality control in Stitching:

- Input material checking
- Cut panel and accessories checking
- Machine is in well condition
- Thread count check
- Special work like embroidery, printing panel check
- Needle size checking
- Stitching fault should be checked
- Garments measurement check
- Seam fault check
- Size mistake check
- Mismatching matching of trimming
- Shade variation within the cloth
- Wrong placement of interlining
- Creased or wrinkle appearance control

Quality control in production analysis:

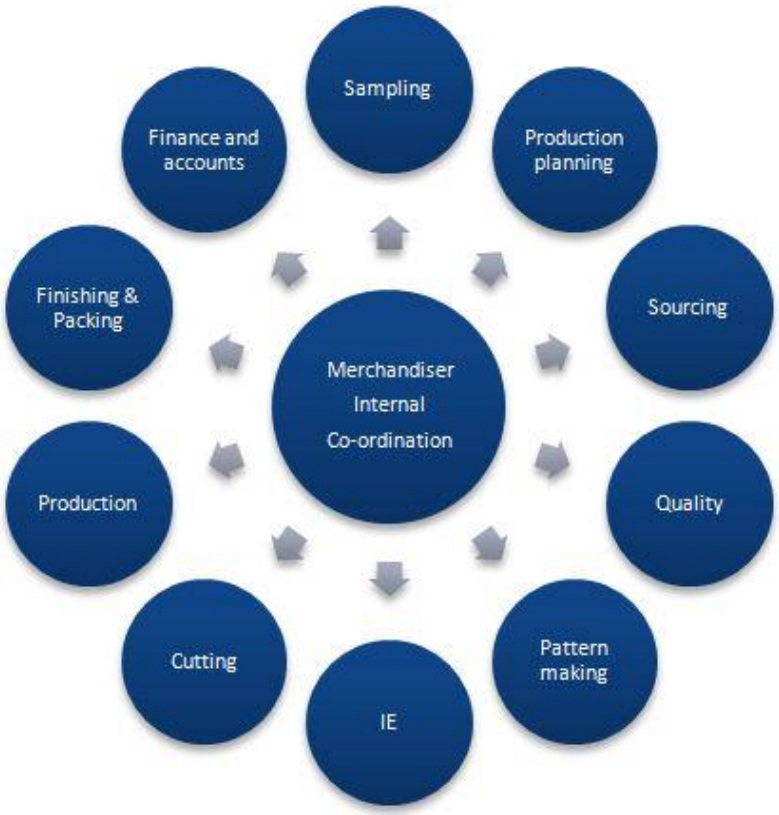
- Proper inspection of the garments including measurement, spot, dirt, impurities
- Water spot
- Shading variation check
- Smooth and unfold in pocket
- In secured or broken chain or button
- Wrong fold
- Proper shape in garments
- Properly dried in after pressing
- Wanted wrinkle or fold in lining
- Get up checking
- Collar closing
- Side seam
- Sleeve placket attach
- Cuff attach
- Bottom hem
- Back yoke
- Every parts of a body

Co coordinating department activities:

Co-ordination is different from communication. There is very thin line between the communication and coordination. Communication is the activity of passing on information in an attempt to create shared understanding while coordination is the acts of organizing different people do things together. Co-ordination means to integrate (bring together) all the activities of an organisation by following up.For good communication merchandiser need to sharpen communication skills, while for good coordination merchandiser have to use negation abilities and creativity.Co-ordination is a managerial function in which different activities of the business are properly adjusted and interlinked. It is done for achieving the goals of the organisation. There must be proper co-ordination throughout the process of fashion cycle in order to deliver the merchandise on time to buyer.

Merchandiser as Co-ordinator

Coordination is the major aspect of fashion merchandising, one need to coordinate with all departments within the organization and outside the organization in order to deliver the export order successfully.Co-ordination can be classified in two types: Internal Coordination and External Coordination.



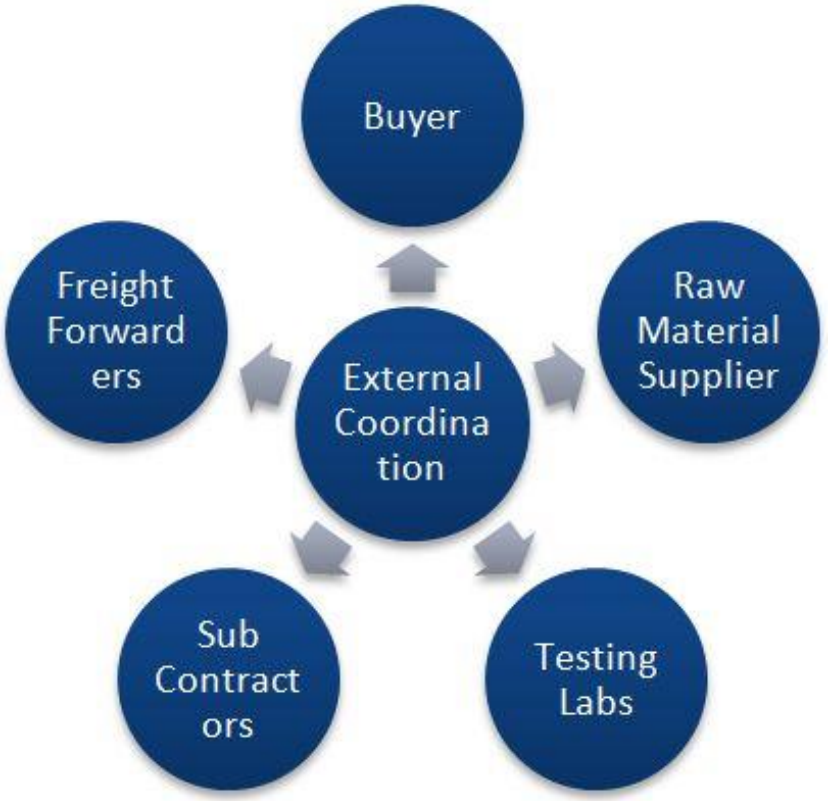
Internal Coordination

Once order is confirm to factory, merchandiser need to co-ordinated with all the related department to execute the same. For the smooth functioning Factory merchandiser use different formats and documents to coordinate within the factory. Some of them are created by factory merchandiser some of them are provided by buyer as buyer merchandiser also needssome information from the factory.This type of coordination referred to as internal coordination.Factory merchandiser needs to coordinate with the following departments within the factory.

External Coordination

In order to execute the order successfully, merchandiser need to do the Coordination with external organizations or people like, buyer, raw material suppliers, sub-contractors, testing laboratories, freight forwarders, etc. Buyer merchandiser coordinateswith factory merchandiser in the form of production progress report, FPT and GPT reports', sampling status reports, etc.,

with these reports buyer understands at what stage order is and whether it can be delivered on time or not.This type of coordination my referred as external coordination.



Time and action calendar: Tools used for Coordination

Time and Action Calendar or TNA isone of the most important tools used by fashion merchandisers.It is an effective way of coordination and following up of important milestones in preproduction, production and postproduction processes to ensure timely delivery within stipulated delivery date. TNA will help merchandisers to keep the tract of the important activity and any delay in the same can be avoided by proper coordination and communication with the concerned people or department.

Other co ordinations:

1. **Coordination with sampling:**
2. **Coordination with production planning department (PPC):**

- Machine capacity and labor capability of the factory.
- Order quantities of the merchandise
- Time lines of Fabric and trim sourcing

3. **Coordination with Sourcing**
4. **Coordination with Quality**
5. **Coordination with Pattern making/CAD:**
6. **Coordination with Industrial Engineering (IE):**
7. **Coordination with Cutting:**
8. **Coordination with Production:**
9. **Coordination with Finishing and Packing:**
10. **Coordination with Finance/accounts:**

External Coordination

Factory Merchandiser needs to coordinate with following mentioned external parties for timely delivery of merchandise.

1. Coordination with sub vendors (Printing, washing, embroidery):

2. Coordination with third party testing:

3. Coordination with fabric and trim suppliers:

4. Coordination with freight forwarder:

5. Coordination with Buyer:

Order Status Report

OSR includes up to date data on the following-

- Total raw material received
- Total fabric cut
- Production WIP (work in progress)
- Number if total garment produced
- Washing WIP
- Finishing WIP
- Number of garments ready to ship

Distribution of tickets and Maintenance of records:

Sewing machine maintenance & safety policy practice:

Best & regular maintenance of plants machinery increase not only machine life but also with quality garments stitching, less consumption of spare parts & reduce the tendency of machine problem results increase total productivity. In view of the above the machinery maintenance policy & procedure are being given below.

1. Daily maintenance: while the sewing floor is running if any machine creates a problem, initially floor mechanics try to fix that machine within the line. If it is not possible in a short time, the machine will be shifted to the maintenance room replaced by another machine & necessary measure will be taken to fix that Machine. The daily records of maintenance works have been kept in a format.

2. Monthly maintenance: It is preventive maintenance to reduce machinery problems & increase machine life, execute by predetermining a schedule fixed at the starting of the year on a regular basis. This maintenance program covers total servicing of all machines, oil change, oil filter change, or any defective parts change. Records of monthly maintenance work havebeen kept in a format.

Sewing machine preventive maintenance

Responsibilities of Sewing machine Operator

1. Check threading of the machine→ daily

2. Complete cleaning of the machine→ daily
3. Keep the Clean paper under the foot→ daily
4. Check for oil leaks → Every Four hour
5. Clean needle/foot/t. feed bars → Every Four hour
6. Clean machine head with → Every Four hour
7. Clean machine tabletop→ Every Four hour
8. Un-usual noise of the machine→ all-day

Responsibilities of Sewing machine Mechanic

Daily Basis work of Sewing machine Mechanic

1. Check Machine Setting Correct or Not→ all-day
2. Check Oil Level and Oil Leaks of the Machine→ Day starting
3. Check un-usual noise of the machine →All-day
4. Check Oil-paper → Day starting
5. Check safety Equipment→ Day starting
6. Check Machine allocation (According to M/C Layout) → Day starting
7. Check Production Plan → Day starting

Monthly basis work Sewing machine Mechanic

1. Whole machine clean opening parts
2. Back/ Front cover
3. Hook/ Looper timing and Needle
4. Needle plate
5. Feed dog
6. Oil lubrication change
7. Checking machine fitness to run continuously.

Daily Sewing Machine Check Points

1. Tension spring
2. Take up spring
3. Bobbin case spring
4. Thread wiper
5. Oil level/ oil leak
6. Threading
7. Needle plate/ fee dog
8. Machine washer
9. Laser light
10. Needle plate/ fee dog

Monthly Sewing machine maintenance/servicing checklist

1. Air device
2. Trimmer device
3. Super tension post take up spring
4. Needle bar, bush and clam condition
5. Needle plate condition
6. Feed dog condition
7. Winder condition
8. Rottery hook or loopers
9. Oil level/ oil filter condition
10. Machine table in good condition
11. Cleaning and blowing
12. The lubricant in equipment (oil and grease cut)
13. Main shaft, connecting rod, bearing condition
14. Machine head has to be balanced with base plate
15. Knife slide
16. Power on/ off switch
17. Motor and control box condition
18. Abnormal sound Connecting rod and crosshead

Establishing Merchandising standards:

Merchandising department is the star of the departmentamong all the working departments in the Export concern, because Merchandisingis the only department having maximum control over the departments and totalresponsible for Profit and loss of the company.

After LPG (Liberalization, Privatization &Globalization) the business gets more important and now merchandising is on itshot seats. So, it is necessary to understand the day to day happenings of the stardepartment.

Merchandise- means goods bought and sold; and trading of goods.

Merchandising- is an activity of selling and promoting the goods.

Objects of Merchandising

Merchandising denotes all the planned activities to executeand dispatch the merchandise on time, taking into consideration of the 4 Rs toreplenish the customer.

- Right Quantity: To dispatch right quantity of product what buyer ordered.
- Right Quality: It should be with right quality as accepted both parties.
- Right Cost: Everybody wants more from what they are paid.
- Right Time: No one wants to wait idle even in a Restaurant. Keeping delivery schedule is mandatory.

The standards need to include things like:

- Employee dress and behavior
- Store and department opening and closing times
- Merchandising condition expectation at various times of the day
- Product appearance, condition or freshness
- Customer satisfaction policies
- Display standards
- Sign standards
- Cleanliness
- Fixture condition
- Painting to keep a fresh appearance

The quality control of trims and fasteners, sewing thread and accessories:

Quality control of trims:

- Trim is an essential part of the garment manufacturing process, as it can vastly improve the look, feel, and quality of the garment.
- It can be used to add decorative elements, provide additional protection, or simply make the garment look more professional.
- Trim can also serve as a branding element, as it can be customized to reflect a company's logo or design.
- In addition, trim can also be used to hide seams, ensure a snug fit, and provide additional comfort.
- It is important to ensure that trim is of high quality and free from defects, as poor-quality trim can significantly reduce the overall quality of the garment.
- Furthermore, trim should be applied securely and uniformly to the garment, as this will ensure the garment looks neat and professional.
- Finally, trim should also be inspected for compliance with customer requirements and industry standards.

Quality control of fasteners:

- A zipper, zip, or zip fastener, is a commonly used device for temporarily joining two edges of fabric.
- It is used in clothing (e.g., jackets and jeans), luggage and other bags, sporting goods, camping gear (e.g. tents and sleeping bags), and other items.

Following Factors are Considered in Zipper:

- Proper dimension of zipper
- The top and bottom end should correctly sew
- The tape and color of zipper should be uniform
- Slider has to be locked properly
- The slider should move properly

Quality control of sewing threads:

- A slender, strong strand or cord, especially one designed for sewing or other needlework.
- Most threads are made by plying and twisting yarns.
- A wide variety of thread types are in use today, e.g., spun cotton and spun polyester, core-spun cotton with a polyester filament core, polyester or nylon filaments (often bonded), and mono filament threads.

1. Thread Construction/Ticket number
    - Thread count
    - Thread Ply
    - Number of twists
    - Thread balance
    - Thread Tenacity
    - Thread Elongation
2. Sew ability
3. Imperfection
4. Thread finish
5. Thread color
6. Package Density
7. Winding
8. Yardage

Quality control of accessories:

- Quality of Trims and Accessories quality is very important for garments because of its added value with the final product.
- Trims and Accessories Inspection in apparel is required to ensure the use of the right quality trims and accessories for getting quality garments
- Although Trims and Accessories are supplied by the third party/buyer nominated supplier.
- Basically, garments maker check trims quality after receiving. If there is any quality issue, then they can claim for compensation within a certain date of Trims and Accessories in-house

Trims and Accessories Quality Defect Criteria to Identify During Inspection

1. Print Mistake: Any problem showing for incorrect printing. Example: color bleeding
2. Color Problem: Used different color/shade, not match with approved trims color
3. Code Mistake: Barcode or any types of code mistake
4. Fitness Problem: Not found as per ordered length and width.
5. Print Spot: Any spot only for printing
6. Measurement Problem: Any types of measurement do not match with an approved swatch
7. Size Mistake: When everything okay but mentioned size not correct
8. Gum nil: If there needed gum but not found in the inspection

UNIT-III

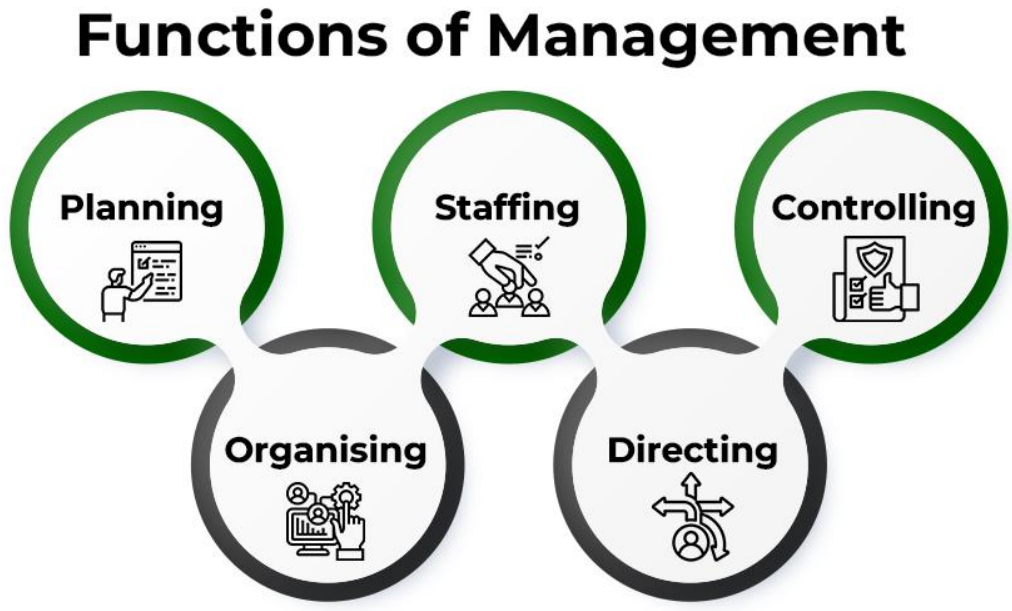
MANAGEMENT

Management is how businesses organize and direct workflow, operations, and employees to meet company goals. The primary goal of management is to create an environment that empowers employees to work efficiently and productively. A solid organizational structure guides employees and establishes the tone and focus of their work.

Managers are involved in implementing and evaluating these structures. As a manager, you may be responsible for doing any of the following tasks:

- Create goals and objectives
- Create schedules
- Develop strategies to increase performance, productivity, and efficiency
- Ensure compliance with company policies and industry regulations
- Mentor employees
- Monitor budgets, productivity levels, and performance
- Resolve customer problems
- Train staff

Functions of Management:



- Planning: Setting objectives and determining the best course of action to achieve them.
- Organizing: Arranging resources and tasks to implement the plan.
- Staffing: Recruiting, selecting, and training individuals for specific roles within the organization.
- Directing: Leading and motivating employees to work towards the organization's goals.
- Controlling: Monitoring performance and making adjustments to ensure objectives are achieved.

Planning

A plan is a future series of actions decided beforehand. It specifies the objective to be achieved in the future and the steps required to achieve them. Planning is the most essential function of management. It is concerned with thinking in advance about what to do and who is going to do it.

Organising

Organising is the management function of allotting duties, grouping various activities, establishing authority, and allocating resources necessary to attain the specific plan. Once the plans are formulated, the organising function reviews the activities and resources needed to be applied to the plan. It resolves the activities and resources needed.

Staffing

Staffing refers to the process of hiring and developing the required personnel to fill in various positions in the organisation. It is that part of the management process, which is concerned with recruitment, selection, placement, allocation, conservation, and development of human resources.

Directing

Directing is that component of the management process which ensures that the members of an organisation work efficiently and effectively for achieving the desired objective. It involves leading, influencing, instructing, guiding, and inspiring employees to perform and achieve the predetermined objectives. The two important components of directing are motivation and leadership.

Controlling

When the plans are put into operation from directing, it becomes essential to judge regularly whether the actual results are consistent with the planned results. It monitors the organisational performance towards the fulfilment of organisational goals. It enables the manager to detect errors and defects in the course of work and to take corrective actions whenever needed.

Production and productivity:

Production:

Production refers to the total output that is produced by a firm, industry, or economy over a specified period. It's a raw figure that doesn't account for resources used in the production process.

Production and Its Types:

Production, as a pivotal concept in economics and business, has several types. Let's explore the three primary types of production:

1. Job Production: Job production involves producing custom work, such as a unique product or a single service. It's typically seen in industries like architecture, construction, or custom machinery.
2. Batch Production: In batch production, a set of products or services are produced together in a 'batch'. This type is common in food processing, pharmaceuticals, or software development.
3. Mass or Flow Production: This production type involves creating large volumes of identical products, typically on an assembly line. Automobile manufacturing or mass-produced electronics exemplify this type of production.

Productivity:

Productivity is a measure of how efficiently resources are utilized in the production process. It calculates the ratio of output (production) to input (resources used, such as labor, capital, etc.)

Productivity and Its Types:

The concept of productivity, too, can be divided into several types. The following are some primary forms:

1. **Labor Productivity:** This is a measure of output produced per labor-hour. Higher labor productivity means more goods or services are being produced for each hour of labor.
2. **Capital Productivity:** Capital productivity evaluates output per unit of capital. A higher ratio implies that capital (like machinery or buildings) is being used more effectively.
3. **Multifactor Productivity:** This type of productivity measurement takes into account multiple inputs, such as labor, capital, and raw materials. It provides a more comprehensive view of a firm's or an industry's efficiency.

UNIT-IV

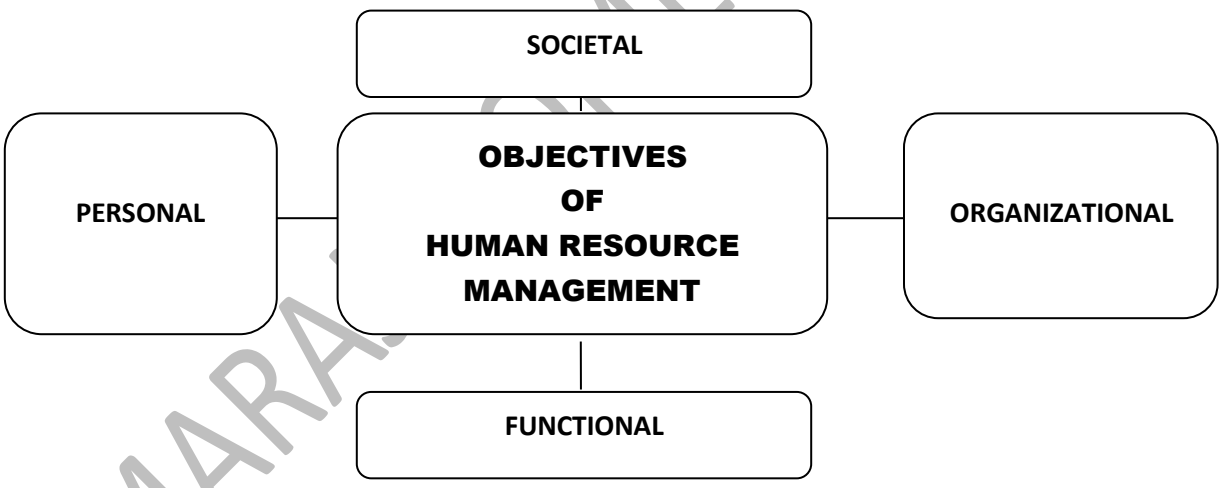
HUMAN RESOURCE MANAGEMENT

Human resource management:

Human resource management is organising, coordinating, and managing employees within an organisation to accomplish its mission, vision, and goals. This includes recruiting, hiring, training, compensating, retaining, and motivating employees.

HRM staff also develops and enforces policies and procedures to help ensure employee safety. The HRM team manages adherence to federal and state laws that may work to protect employees' private information and ensure their physical safety and mental and emotional well-being. Organisations of varying sizes and industries rely on HRM to keep business running smoothly and efficiently.

Objectives of human resource management:



Societal:

HRM comprises developing programs to fulfil employees' economic, psychological, ethical, and social needs. For example, compensation and benefits programs, equal opportunity programs, community relations programs, disability employment programs, etc. These programs aim to meet employees' societal objectives, motivating and retaining productive employees.

Organizational:

One significant objective of HRM is to ensure the availability of the correct number of employees with the right skills at the right place. HRM goals and strategies are designed to optimize a business's performance through the effective management of its employees. These objectives often include attracting and retaining top talent and fostering a positive and inclusive workplace culture.

Functional:

The functional objective of HRM is to prepare organizational policies in compliance with provisional/ territorial and federal laws related to human rights, occupational health and safety, employment equity, labour relations, and employment standards. This helps organizations maintain the quality of work life and ensure ethical employee behaviour.

Personal:

The personal HRM objective includes acquiring, developing, utilizing, and retaining efficient employees. This can be possible if employees can accomplish organizational and individual goals. For this, employees should be provided with adequate training and feedback on their performance. This helps employees identify areas for improvement and rectify them.

Functions of Human resource management:

Human Resource Management functions can be classified into the following three categories.

- Managerial Functions,
- Operative Functions, and
- Advisory Functions.

The **Managerial Functions of Human Resource Management** are as follows:

1. Human Resource Planning - In this function of HRM, the number and type of employees needed to accomplish organizational goals are determined. Research is an important part of this function, information is collected and analyzed to identify current and future human resource needs and to forecast changing values, attitudes, and behaviour of employees and their impact on the organization.

2. Organizing - In an organization tasks are allocated among its members, relationships are identified, and activities are integrated towards a common objective. Relationships are established among the employees so that they can collectively contribute to the attainment of the organization's goal.

3. Directing - Activating employees at different levels and making them contribute maximum to the organization is possible through proper direction and motivation. Taping the maximum potential of the employees is possible through motivation and command.

4. Controlling - After planning, organizing, and directing, employees' actual performance is checked, verified, and compared with the plans. If the actual performance is found to deviate from the plan, control measures are required to be taken.

The **Operative Functions of Human Resource Management** are as follows:

Functions of HRM,Functions of Human Resource Management,HRM,HRM Notes,Human Resource Management,Human Resource Management Notes

1. Recruitment and Selection - Recruitment of candidates is the function preceding the selection, which brings the pool of prospective candidates for the organization so that the management can select the right candidate from this pool.

2. Job Analysis and Design - Job analysis is the process of describing the nature of a job and specifying the human requirements like qualifications, skills, and work experience to perform that job. Job design aims at outlining and organizing tasks, duties, and responsibilities into a single unit of work for the achievement of certain objectives.

3. Performance Appraisal - Human resource professionals are required to perform this function to ensure that the performance of employees is at an acceptable level.

4. Training and Development - This function of human resource management helps employees acquire skills and knowledge to perform their jobs effectively. Training and development programs are organized for both new and existing employees. Employees are prepared for higher-level responsibilities through training and development.

5. Wage and Salary Administration - Human resource management determines what is to be paid for different types of jobs. Human resource management decides employee compensation which includes - wage administration, salary administration, incentives, bonuses, fringe benefits, etc,.

6. Employee Welfare - This function refers to various services, benefits, and facilities that are provided to employees for their well-being.

7. Maintenance - Human resources is considered an asset for the organization. Employee turnover is not considered good for the organization. Human resource management always tries to keep their best-performing employees with the organization.

8. Labour Relations - This function refers to human resource management interaction with employees represented by a trade union. Employees come together and form a union to obtain more voice in decisions affecting wages, benefits, working conditions, etc,.

9. Personnel Research - Personnel research is done by human resource management to gather employees' opinions on wages and salaries, promotions, working conditions, welfare activities, leadership, etc,. Such researches help in understanding employee satisfaction, employee turnover, employee termination, etc,.

10. Personnel Record - This function involves recording, maintaining, and retrieving employee-related information like - application forms, employment history, working hours, earnings, employee absents and presents, employee turnover, and other data related to employees.

The **Advisory Functions of Human Resource Management** are as follows:

Human Resource Management is expert in managing human resources and so can give advice on matters related to human resources of the organization. Human Resource Management can offer advice to:

1. Advised to Top Management

The personnel manager advises the top management in the formulation and evaluation of personnel programs, policies, and procedures.

2. Advised to Departmental Heads

The personnel manager advises the heads of various departments on matters such as manpower planning, job analysis, job design, recruitment, selection, placement, training, performance appraisal, etc..

Principles of HRD:

Principles of Human Resource Development (HRD)
Some of the principles of human resource development (HRD) which must be kept in mind while framing a HRD system so as to have aproper and regular development of the human resource in an association.

1.**Principle of Development of Organizational Capability**
An ideal HRD system should be grounded on the principle of overall development ofworkers and the association as a whole. The capabilities include overall development of the work force in all aspects, may it be specialized, physical, cerebral or moral development in an systematized manner.

2.Principle of Implicit Maximization

HRD system must enable their workers to identify their retired eventuality and make them competent enough to exploit their gift in an optimum manner so that they could contribute their sweats in attaining organizational pretensions.

3.Principle of Autonomy Maximization

Autonomy is the degree of independence given to workers at work so that they could besuitable to attack responsibility to some extent of what they're able of handling.A proper HRD system must give certain position of autonomy to its workers enabling them of running duties on their own.

4.Principle of Maximum delegation

Delegation of liabilities means participating liabilities of authorities with inferiorsso that a cohesive and a unanimous terrain could be developed in an association.

5.Principle of Participative Decision- making

Participation of inferiors must be encouraged by top position directors in an ideal HRD system to produce a comfortable working atmosphere where workers are free to bandy their ideas and always ate for suggestions.

6.Principle of Change Management

Change is the only endless thing in this macrocosm but generally people resists change. To beat the competition an association and its human resource should be as important flexible in getting itself acclimatize to the changing script of 21st century. A good HRD system must essay to strike a balance between the organizational culture and the changing culture.

7.Principle of Periodic Review

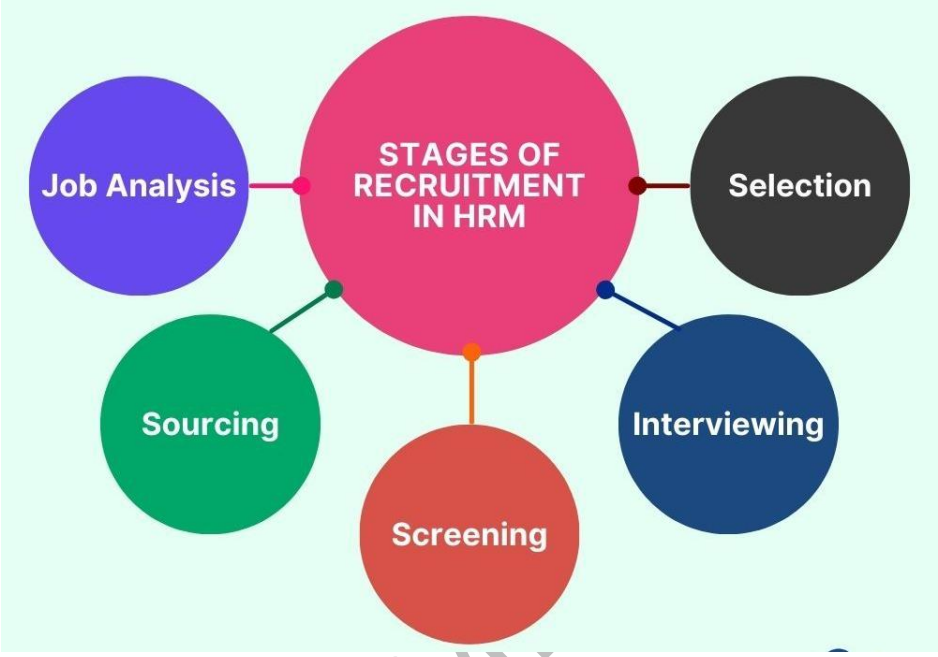
Review and renewal of HRD functions like training and development, career planning and development, performance and implicit appraisal, comforting,etc. of workers should take place regularly in an association at certain periodic intervals.

Recruitment:

Recruitment refers to the process of identifying, attracting, interviewing, selecting, hiring and onboarding employees. In other words, it involves everything from the identification of a staffing need to filling it.

Depending on the size of an organization, recruitment is the responsibility of a range of workers. Larger organizations may have entire teams of recruiters, while others only a single recruiter. In small outfits, the hiring manager may be responsible for recruiting. In addition,

many organizations outsource recruiting to outside firms. Companies almost always recruit candidates for new positions via advertisements, job boards, social media sites, and others.



Job Analysis

Before initiating the recruitment process, a thorough analysis of the job requirements and responsibilities is conducted by HR professionals.

This step helps them understand what qualifications, skills, and experience are necessary for successful performance in the role.

Sourcing

Once job requirements are established, HR professionals employ various methods to attract potential candidates.

This may involve advertising job openings on online platforms or utilizing professional networks to reach out to passive job seekers.

Screening

In this stage, resumes or applications received from interested candidates are reviewed against predefined criteria such as education, experience, and skills.

This initial screening helps HR professional's shortlist candidates who meet the minimum requirements.

Interviewing

Shortlisted candidates are then invited for interviews to assess their suitability for the job. Interviews may be conducted in person, over the phone, or through video conferencing.
HR professionals evaluate candidates' qualifications, communication skills, and cultural fit within the organization during the interview stage.

Selection

After conducting interviews and assessing candidates' performance, HR professionals make decisions regarding job offers.
This stage involves evaluating each candidate's strengths and weaknesses to determine who is most suitable for the position.

Training of supervisors:

Supervisor training is work-related training designed to prepare supervisors for their roles. This type of training is normally offered when someone commences a supervisory role but is often available on an ongoing basis. Providing ongoing training and support helps supervisors to adapt to changes and continually improve their own performance. The exact content and nature of supervisory training are likely to vary between different organisations and business areas.

- This type of training is important for a variety of different reasons.
- It helps supervisors to perform their tasks more effectively.
- Effective managers and supervisors can help teams to improve their overall performance.
- Supervisors who are properly trained help to ensure teams operate smoothly.
- Training gives them the skills to lead their teams successfully.
- This training is also important for individual employees.
- Training expands their skill set, meaning they can take on greater responsibilities and make progress in their careers.

Training of Executives:

Executive development is the process of helping managers and executives gain unique skills that can help improve their performance and prepare them for future leadership roles within an organisation. Both employees and employers aiming to upskill their workforce may use executive development programmes. If you have an interest in learning new skills to become a manager, you may find it beneficial to understand this process.

- This training aims to develop skills such as finance, operations, marketing, communication and team building.
- Conducting executive development practices can help the employer determine whether the candidate has the potential to become a leader.
- Corporate training usually focuses on helping employees gain new skills that may help them in their daily lives.

Objectives of Executive Development:

- Training new employees
- Improving the quality of work
- Preparing for leadership
- Introducing the latest management techniques
- Providing more opportunities
- Introducing changes
- Communication
- Creativity

UNIT-V

QUALITY STANDARDS

Quality standards:

Quality standards refer to sets of guidelines, systems, methods, requirements, and specifications followed by an organization to ensure consistent process and product quality. Mostly prevalent in manufacturing, quality standards are established by industry regulatory boards to help drive customer satisfaction and maintain compliance. Globally, ISO quality standards are the most widely accepted set of standards applicable to various industries.

Some of the benefits of quality standards include the following:

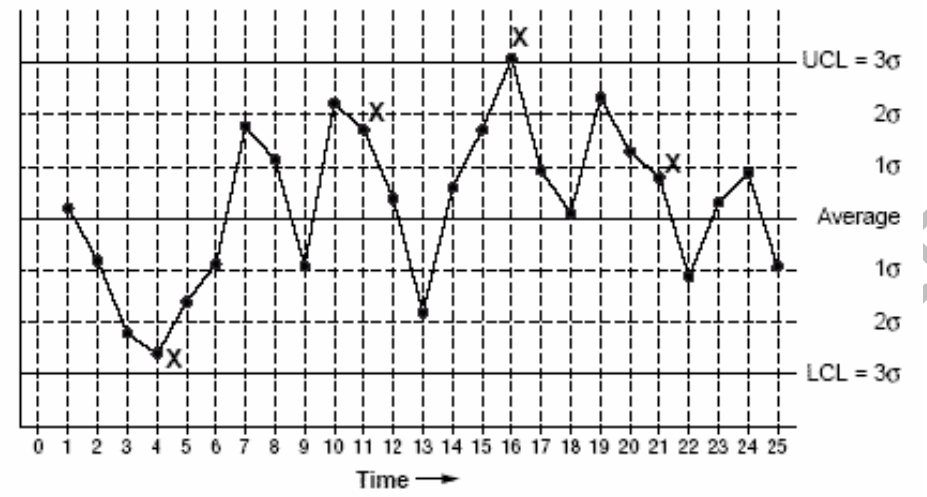
- Continuous improvement of quality outcomes
- Efficient adherence to regulatory requirements and compliance
- Reduced process variation and product defects
- Improved worker productivity and safety
- Enhanced customer satisfaction
- Seamless flow of operations

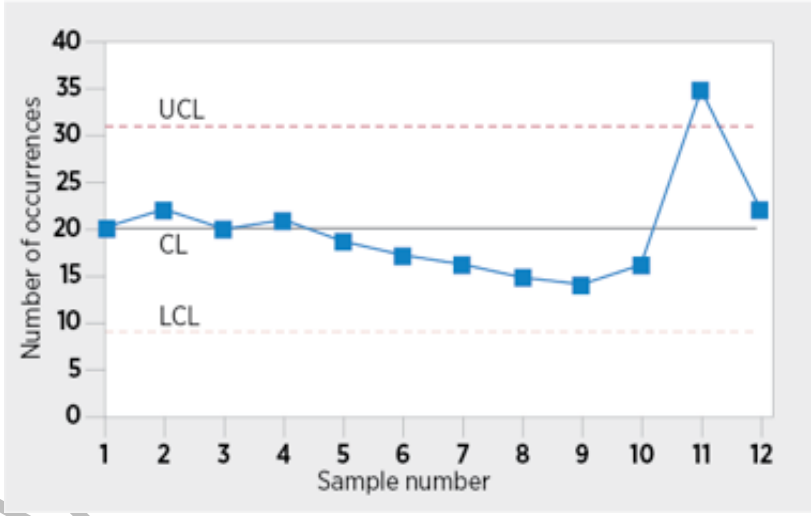
Statistical quality control (SQC):

- **Statistical quality control (SQC)** is the application of statistical methods to monitor and control the quality of a production process. This helps to ensure that the process operates efficiently, producing more specification-conforming products with less waste scrap.
- Statistical quality control (SQC) is the application of statistical methods for the purpose of determining if a given component of production (input) is within acceptable statistical limits and if there is some result of production (output) that may be shown to be statistically acceptable to required specifications.

Control charts:

The control chart is a graph used to study how a process changes over time. Data are plotted in time order. A control chart always has a central line for the average, an upper line for the upper control limit, and a lower line for the lower control limit. These lines are determined from historical data. By comparing current data to these lines, you can draw conclusions about whether the process variation is consistent (in control) or is unpredictable (out of control, affected by special causes of variation). This versatile data collection and analysis tool can be used by a variety of industries and is considered one of the seven basic quality tools.





CONTROL CHARTS

Sampling:

A sample is a subset of individuals from a larger population. Sampling means selecting the group that you will actually collect data from in your research. For example, if you are researching the opinions of students in your university, you could survey a sample of 100 students.

In statistics, sampling allows you to test a hypothesis about the characteristics of a population.

Sampling is the process of selecting a subset of a population to represent the whole population. It is an essential part of market research, as it allows researchers to gather data from a large number of people without having to interview or survey every single person in the population.

Importance of Sampling:

There are several reasons why sampling is important in market research:

- **Cost-effectiveness:** It is much more cost-effective to survey a sample of the population than to survey the entire population.
- **Timeliness:** Sampling also allows researchers to gather data more quickly than they could if they had to survey the entire population.
- **Accuracy:** If sampling is done correctly, the results of a sample survey can be just as accurate as the results of a survey of the entire population.

Sampling can be used to target specific groups of people within the population. For example, if a researcher is interested in learning more about the opinions of millennials, they can create a sample that only includes millennials. This allows the researcher to get more detailed and accurate data from the target group.

Use of sampling techniques:

Statistical sampling is a process that both statisticians and other professionals use to back up their studies and learn more about a specific group of people, such as their clients. Here are some common uses for sampling:

Science: scientists use sampling regularly, as it allows them to gather information from small groups of people to assume what the entire population thinks about concepts such as global warming or water quality. Typically, they invest in more time-consuming sampling methods to make sure their results are as accurate as possible.

Marketing: businesses of all sizes can use sampling techniques to learn more about their customers or potential target markets. They can then use this knowledge to create more effective marketing campaigns.

Medicine: physicians and other medical professionals use sampling to conduct clinical trials. For example, it's common that they use it to determine the side effects of a new medication.

ISO 9000:

ISO 9000 is defined as a set of international standards on quality management and quality assurance developed to help companies effectively document the quality system elements needed to maintain an efficient quality system. They are not specific to any one industry and can be applied to organizations of any size.

ISO 9000 can help a company satisfy its customers, meet regulatory requirements, and achieve continual improvement. It should be considered to be a first step or the base level of a quality system.

ISO 9000 series of Standards

The ISO 9000 family contains these standards:

- ISO 9001:2015: Quality Management Systems - Requirements
- ISO 9000:2015: Quality Management Systems - Fundamentals and Vocabulary (definitions)
- ISO 9004:2018: Quality Management - Quality of an Organization - Guidance to Achieve Sustained Success (continuous improvement)
- ISO 19011:2018: Guidelines for Auditing Management Systems

ASQ is the only place where organizations can obtain the American National Standard Institute (ANSI) versions of these standards in the ISO 9000 family.

ISO 9000:2000

ISO 9000:2000 refers to the ISO 9000 update released in the year 2000.

The ISO 9000:2000 revision had five goals:

1. Meet stakeholder needs
2. Be usable by all sizes of organizations
3. Be usable by all sectors
4. Be simple and clearly understood
5. Connect quality management system to business processes

ISO 9000:2000 was again updated in 2008 and 2015. ISO 9000:2015 is the most current version.

ISO 14000:

ISO 14000 is a set of standards created to help companies around the world reduce their adverse impact on the environment. It's a framework for improved and more environmentally-conscious quality management systems by organizations large and small.

The ISO 14000 series of standards was introduced in 1996 by the International Organization for Standardization (ISO) and most recently revised in 2015. (ISO is not an acronym. The short form of the organization's name is derived from the ancient Greek word ísos, meaning equal or equivalent.)

Here are the key standards included in ISO 14000:

- ISO 14001 and ISO 14002: Specification of Environmental Management Systems
- ISO 14004: Guideline Standard
- ISO 14015, ISO 14016, and ISO 14017: Environmental Auditing and Related Activities
- ISO 14020, ISO 14021, and ISO 14024: EcoLabeling
- ISO 14030 and ISO 14031: Environmental Performance Evaluation

Benefits of ISO 14000

Obtaining ISO 14000 certification can be considered a sign of a commitment to the environment, which can be used as a marketing tool for companies. It may also help companies meet environmental regulations that are imposed by governments in which they do business.

ISO 14000 certification can open the doors to new business. Some companies prefer to use suppliers that are ISO 14000–certified suppliers.

Total quality management:

Total quality management (TQM) is the continual process of detecting and reducing or eliminating errors in manufacturing. It streamlines supply chain management, improves the customer experience, and ensures that employees are up to speed with training.

Total quality management aims to hold all parties involved in the production process accountable for the overall quality of the final product or service.

Quality circle:

Quality Circles, also known as QC or Kaizen Circles, are small groups of employees who voluntarily come together to identify, analyze, and solve quality-related problems within an organization. Originating in Japan in the 1960s, this concept has since spread worldwide as an effective means of improving quality and productivity.

Objectives of a Quality Circle

The primary objectives of Quality Circles are:

- Problem Solving: To identify and resolve quality issues, defects, or process inefficiencies.
- Continuous Improvement: To develop a culture of continuous improvement by encouraging employees to take ownership of quality-related challenges.
- Skill Development: To enhance the problem-solving, communication, and teamwork skills of participating employees.
- Increased Employee Engagement: Engaging employees in decision-making and quality improvement efforts leads to higher job satisfaction.

Marketing channels:

Marketing channels are the vessel between you and your audience. They allow the seamless exchange of information between your brand and its buyers, providing the opportunity to reach more people and expand awareness of your product and services.

Marketing channels are important because they:

- Identify the best channels to distribute to a target audience.
- Ensure products reach their intended audience.
- Save time and money by having a channel do the work.
- Reach more customers.

Functions ofa Marketing Channel:

1. Collect Market Information

2. Distribute Product or Service to Customers

3. Promote a Product or Service

4. Manage Transactions

5. Carry Inventory

6. Risk Sharing

7. Negotiation

8. Manage Logistics

Advertising:

- The advertising industry is faced with a unique challenge to maintain brand integrity and quality control in the midst of ever-changing technology, consumer preferences, and competition.
- Quality management plays an essential role in meeting these challenges.
- It ensures that the goods or services advertised meet customer expectations while also effectively communicating their message.
- We can explore how quality assurance techniques can help ensure brand integrity across various types of advertising campaigns and platforms.
- We will also discuss how organizations can use different strategies to measure success as well as optimize their processes for maximum efficiency.

Sales promotion:

- Sales promotion is a direct and instant inducement aimed at an immediate increase in sales.
- It is also a handy tool for the marketer for unloading accumulated inventory and overcoming seasonal slumps.
- It is also used to generate trials for new products. In short, it is a direct and immediate incentive for purchase.
- It involves temporary encouragements to increase the sale of a product/service.
- It depends on a number of promotional tools intended to motivate a prior customer response.
- Sales promotion comprises of customer promotion (i.e. samples, coupons, rebates, price-off, premiums, contests, demonstrations), trade promotion-buying allowances (free goods, cooperative advertising, and push money), and sales force promotion (bonuses and contests).
- A well-planned sales promotion can result in publicity.

Material management:

- Material management is the process of planning, organising, directing and controlling the flow of materials within an organisation.
- In the manufacturing field, material managers perform a vital role in purchasing, obtaining and maintaining raw materials to use in production processes.
- Having a basic understanding of this concept and the specific role of a material manager can help you prepare for a career in this field.

- In this article, we outline what material management is, how it works, what material managers do and its five core objectives.

Importance of material management:

- **Cost Reduction**

One of the primary objectives of material management is to reduce the cost of materials. It includes reducing the cost of purchasing materials, as well as reducing the cost of storing and handling materials.

Cost reduction can be achieved through effective planning, procurement, and storage processes, as well as through implementing cost-saving measures such as reducing waste, reducing lead times, and improving the efficiency of delivery processes.

- **Improved Quality**

Another objective of material management is to improve the quality of materials and products. This includes ensuring that the materials and products used in the production meet specified standards of quality and implementing processes to prevent defects.

Improving the quality of materials and products can help ensure customer satisfaction, improve the company's reputation, and reduce the cost of rework and warranty claims.

- **Timely Delivery**

A third objective of material management is to ensure the timely delivery of materials and products. This includes ensuring that the right materials are available at the right time and in the right quantity to meet production needs and implementing processes to prevent delays in the delivery of materials.

Timely delivery is critical to any business's success and can help improve customer satisfaction, reduce inventory costs, and improve production process efficiency.

- **Inventory Optimization**

Another objective of material management is to optimize inventory levels. This includes determining the optimal inventory level to maintain and implementing processes to manage the movement of materials within the warehouse.

Inventory optimization can help to reduce the cost of storage and handling and minimize the risk of stock shortages or obsolescence.

- **Efficient Supply Chain**

A final objective of material management is to ensure the efficiency of the supply chain. This includes reducing lead times, improving the efficiency of delivery processes, and optimizing the movement of materials within the warehouse.

An efficient supply chain can help to reduce the cost of materials, improve customer satisfaction, and increase the competitiveness of the business.