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**APPAREL MADE-UPS HOME FURNISHING
SECTOR SKILL COUNCIL**

Facilitator Guide



Sector
Apparel

Sub-Sector
Apparel, Made-Ups & Home Furnishing

Occupation
Production Supervision

Reference ID: AMH/Q2102, Version 1.0
NSQF level: 4

**Apparel
Operations
Data
Specialist**





Shri Narendra Modi
Prime Minister of India

“

Skill development of the new generation is a national need and is the foundation of Aatmnirbhar Bharat

”



Acknowledgements

Apparel, Made-ups & Home Furnishing Sector Skill Council would like to express its gratitude to all the individuals and institutions who contributed in different ways towards the preparation of this “Facilitator Guide”. Without their contribution it could not have been completed. Special thanks are extended to those who collaborated in the preparation of its different modules. Sincere appreciation is also extended to all who provided peer review for these modules.

The preparation of this facilitator guide would not have been possible without the Apparel Industry’s support. Industry feedback has been extremely encouraging from inception to conclusion and it is with their input that we have tried to bridge the skill gaps existing today in the industry.

This facilitator guide is dedicated to the aspiring youth who desire to achieve special skills which will be a lifelong asset for their future endeavours.

About this Guide

The facilitator guide (FG) for Apparel Operations Data Specialist is primarily designed to facilitate skill development and training of people, who want to become professional Apparel Operations Data Specialist. The facilitator guide is aligned to the Qualification Pack (QP) and the National Occupational Standards (NOS) as drafted by the **Sector Skill Council** and ratified by National Skill Development Corporation (NSDC).

It includes the following National Occupational Standards (NOSs)-

1. AMH/N2106: Coordinate Apparel Production and Workforce Operations
2. AMH/N2107: Design Efficient Line Layouts and Manage WIP Flow
3. AMH/N2108: Evaluate Production Performance and Implement Root Cause Solutions
4. AMH/N2109: Communicate and Collaborate Across Departments
5. AMH/N2110: Ensure Safety and Compliance Standards on Production Floor
6. AMH/N0310: Manage the workspace, operate tools, and handle machinery efficiently
7. DGT/VSQ/N0102: Employability Skills (60 Hours)

Post this training, the participants will be able to perform tasks as Apparel Operations Data Specialist. We hope that this Facilitator Guide provides a sound learning support to our young friends to build a lucrative career in the Apparel, Made-Ups & Home Furnishing Sector Skill Council of our country.

Symbols Used



Ask



Explain



Elaborate



Notes



Objectives



Do



Demonstrate



Activity



Team Activity



Facilitation Notes



Practical



Say



Resources



Example



Summary



Role Play



Learning Outcomes



Exercise

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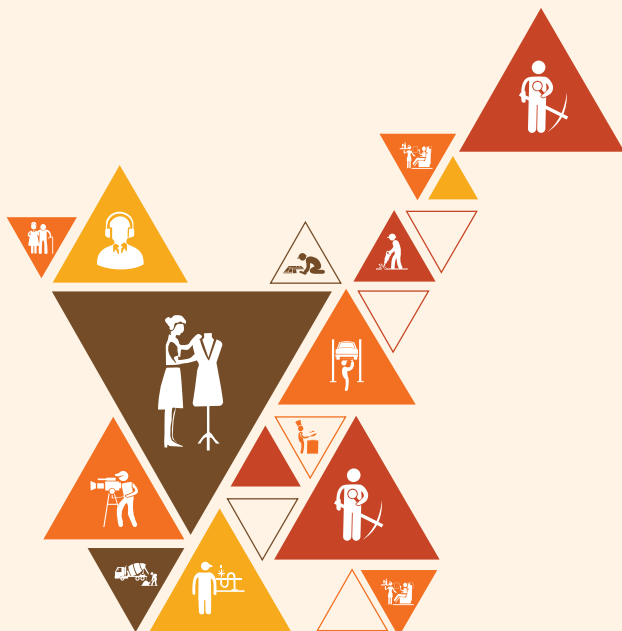


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& ENTREPRENEURSHIP



1. Introduction and Orientation to Apparel Operations Data Specialist

Unit 1.1 - Introduction to Apparel Operations



Bridge Module

Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Describe the structure and significance of the Indian apparel industry and its key sectors.
2. Identify employment opportunities and career prospects available for an Apparel Operations Data Specialist.
3. Explain the apparel production process and the role of an Apparel Operations Data Specialist at different stages of production.
4. Describe the roles, responsibilities, and key work activities performed by an Apparel Operations Data Specialist on the production floor.

Unit 1.1: Introduction to Apparel Operations

Unit Objectives

By the end of this unit, the participants will be able to:

1. Describe the structure and scope of the Indian apparel industry.
2. Identify employment opportunities for an Apparel Operations Data Specialist in the apparel industry.
3. Explain the apparel production process from order receipt to finished garment.
4. Describe the relationship between the role of an Apparel Operations Data Specialist and the overall production process.
5. Explain the roles, responsibilities, and work activities of an Apparel Operations Data Specialist.
6. Identify the key production floor processes and the flow of operations in an apparel manufacturing unit.
7. Relate production floor activities to the data collection and reporting responsibilities of an Apparel Operations Data Specialist.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, apparel manufacturing process flow chart, organisation structure chart of an apparel factory, production floor layout chart, sample production reports, sample production planning sheet, sample line-wise production data sheet, quality inspection report samples, WIP tracking sheet, department-wise workflow chart, data flow diagram, apparel product samples, videos of apparel manufacturing processes, internet connection, speaker, attendance register

Do

- Introduce the apparel industry by connecting it with clothing that participants use in their daily lives and gradually move towards factory operations.
- Explain each stage of apparel manufacturing using process flow diagrams, visuals, and practical examples before introducing the role of data in production.
- Encourage participants to actively identify different departments, production stages, and reporting requirements through guided classroom discussions.
- Demonstrate how production information moves from the shop floor to management using simple production reports and data recording formats.
- Reinforce the importance of the Apparel Operations Data Specialist by relating every production activity to the need for accurate data collection and reporting.

Say

- Welcome everyone! I am happy to begin this learning journey with you. Today we will explore how the apparel industry works and understand the important role played by an Apparel Operations Data Specialist in making production efficient.

- In this session, I will help you understand the structure of the Indian apparel industry, the production process, employment opportunities, production floor activities, and how production data flows across different departments.
- By the end of today's session, I want you to see how accurate data supports timely production, quality improvement, and better decision-making, making this role valuable for every apparel manufacturing unit.

Ask



- When you buy a shirt or a pair of jeans, have you ever wondered how many people work together before that product reaches the shop?
- Have you ever seen someone recording attendance, stock, or daily work details in a notebook or on a computer? Why do you think those records are important?
- If many people are working together on one task, what problems might happen if nobody keeps track of the work completed each day?

Explain



- Explain the importance of the Indian apparel industry, its contribution to employment, exports, economic growth, and its significance in the manufacturing sector.
- Describe the structure of the apparel industry, including manufacturers, suppliers, buyers, exporters, and supporting service providers working together.
- Explain the complete apparel manufacturing process from order receipt, fabric sourcing, cutting, stitching, finishing, quality inspection, packing, and dispatch.
- Discuss different types of apparel manufacturing units such as export houses, domestic manufacturers, buying houses, and small and medium garment units.
- Introduce the major departments involved in apparel manufacturing including production, planning, quality, merchandising, warehouse, maintenance, and human resources.
- Explain India's position in the global apparel market and the growing use of automation, digital systems, and production technologies in factories.
- Discuss how production data is generated, collected, processed, shared, and used for monitoring productivity, quality, efficiency, and decision-making.
- Explain the employment opportunities, roles, responsibilities, competencies, and importance of an Apparel Operations Data Specialist within production operations.
- Describe the major production floor processes, interdepartmental coordination, and how production activities are monitored through systematic data collection.
- Explain different production reports, reporting practices, best practices for data accuracy, and the importance of timely reporting for effective production management.

Elaborate



- The Indian apparel industry is one of the country's largest employment generators and contributes significantly to exports, manufacturing output, and economic development. It offers numerous career opportunities across production, quality, merchandising, planning, logistics, and data management.

- Apparel manufacturing follows a structured sequence beginning with customer orders and material procurement, followed by cutting, stitching, finishing, quality checking, packing, and shipment. Every stage generates valuable production information that supports planning and control.
- Apparel factories may differ in size and business model, including export-oriented factories, domestic manufacturers, boutique production units, and contract manufacturing facilities. Although their operations vary, each depends on effective coordination and accurate production data.
- Different departments perform specialised functions while remaining interconnected throughout production. Departments such as planning, production, quality, stores, maintenance, and merchandising continuously exchange information to achieve production targets.
- India remains an important supplier in the global apparel market because of its skilled workforce, strong textile base, and manufacturing capacity. Modern factories increasingly adopt automation, digital production systems, ERP software, and real-time reporting tools.
- Data plays an essential role in monitoring productivity, tracking work-in-progress, analysing defects, measuring efficiency, controlling inventory, and supporting timely managerial decisions. Reliable production data improves both operational performance and customer satisfaction.
- The Apparel Operations Data Specialist collects, verifies, analyses, and reports production information while coordinating with multiple departments. The role requires accuracy, analytical thinking, communication skills, computer proficiency, and attention to detail.
- Production floor processes involve continuous movement of materials, workers, machines, and information. Monitoring each production stage helps identify delays, bottlenecks, quality issues, and opportunities for process improvement.
- Production reports such as hourly production reports, line efficiency reports, quality reports, attendance reports, WIP reports, and dispatch reports help supervisors and managers evaluate factory performance and take corrective action quickly.
- Best reporting practices include maintaining accuracy, recording data on time, verifying information before submission, following standard reporting formats, ensuring confidentiality where required, and communicating production updates clearly to concerned departments.

Demonstrate



Demonstrate a simple production data flow by displaying a sample production sheet showing daily line production. Explain how operators complete work, supervisors record production, data is entered into a reporting sheet, reports are shared with production planning and management, and decisions are taken based on the collected information.

Activity



1. **Name of the Activity:** Arrange the Apparel Production Flow
2. **Objective of the Activity:** To help participants understand the apparel manufacturing process, production departments, and the sequence of data flow within an apparel manufacturing unit.
3. **Resources:** Process stage cards, department name cards, chart paper, adhesive tape, marker pens, sample production report, sticky notes
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes

6. Instructions

- Divide the participants into small groups of 4–5 members.
- Provide each group with shuffled process stage cards and department name cards.
- Ask each group to arrange the production stages in the correct sequence from order receipt to dispatch.
- Instruct the groups to place the department responsible for each production stage beside the appropriate process card.
- Ask participants to identify where production data is generated during each stage and attach sticky notes mentioning the type of data collected.
- Invite each group to present their completed production flow to the class.
- Discuss the correct sequence collectively and clarify any misconceptions.

- 7. Outcome:** Participants correctly identify the apparel manufacturing sequence, understand departmental responsibilities, recognise where production data is generated, and appreciate the importance of systematic production reporting.

Notes for Facilitation

- Encourage every participant to contribute during discussions and activities, creating an inclusive and interactive learning environment.
- Use simple language, visual aids, and practical examples so that participants with no prior industry experience can easily understand the concepts.
- Continuously relate production activities to the responsibilities of an Apparel Operations Data Specialist so participants understand the relevance of the job role.
- Use actual or sample production reports wherever possible to familiarise participants with industry documentation and reporting formats.
- Emphasise that accurate, timely, and error-free data recording directly supports production planning, quality improvement, and operational efficiency in apparel manufacturing.

Answers to Exercises for PHB

Multiple Choice Questions:

1. b. Managing and analysing production data
2. c. Sewing Department
3. d. Line Efficiency Report
4. c. Final Inspection and Finishing
5. b. It helps monitor production performance and supports decision-making.

Descriptive Questions:

1. Refer Unit 1.1: Introduction to Apparel Operations
Topic: 1.1.1 Indian Apparel Industry Overview
2. Refer Unit 1.1: Introduction to Apparel Operations
Topic: 1.1.1 Indian Apparel Industry Overview
3. Refer Unit 1.1: Introduction to Apparel Operations
Topic: 1.1.3 Role of the Apparel Operations Data Specialist in Production
Topic: 1.1.4 Roles and Responsibilities of an Apparel Operations Data Specialist
4. Refer Unit 1.1: Introduction to Apparel Operations
Topic: 1.1.5 Production Floor Processes
5. Refer Unit 1.1: Introduction to Apparel Operations
Topic: 1.1.6 Data Flow and Production Reporting
6. Refer Unit 1.1: Introduction to Apparel Operations
Topic: 1.1.6 Data Flow and Production Reporting





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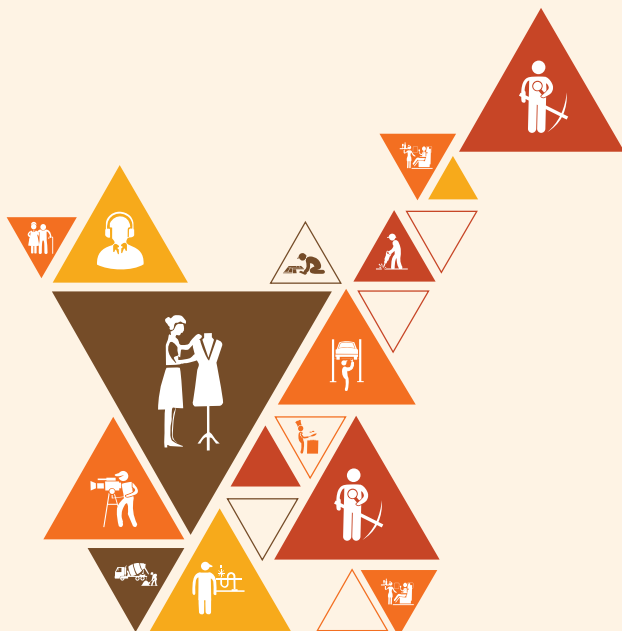
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2. Coordinate Apparel Production and Workforce Operations

Unit 2.1 - Apparel Production Planning and Coordination

Unit 2.2 - Production Monitoring and Performance Management



AMH/N2106

Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Explain the apparel production workflow and interdepartmental coordination for order execution.
2. Describe production planning, scheduling, resource allocation, and production systems used in apparel manufacturing.
3. Interpret production control charts, line balancing concepts, and key performance metrics.
4. Explain lean manufacturing and quality assurance principles for improving production efficiency.
5. Apply production planning tools to allocate workforce, machines, and materials and execute production schedules.
6. Coordinate production activities across departments to maintain smooth workflow and achieve production targets.
7. Monitor workflow, machine utilisation, workstation conditions, and compliance with safety and quality standards.
8. Analyse production data using spreadsheets or ERP systems to identify bottlenecks, delays, and workforce inefficiencies.
9. Implement corrective actions to address operational deviations and improve production and workforce performance.
10. Prepare and communicate production reports and performance dashboards to support operational monitoring and management decision-making.

Unit 2.1: Apparel Production Planning and Coordination

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain the apparel production workflow and coordination between departments.
2. Describe production planning, scheduling, and resource allocation in apparel manufacturing.
3. Differentiate between production systems used in apparel manufacturing.
4. Interpret production control charts, line balancing concepts, and key performance metrics.
5. Apply production planning tools to allocate workforce, machines, and materials.
6. Coordinate production activities to achieve daily production targets and maintain workflow.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, apparel production workflow chart, production planning format, production scheduling sheet, Gantt chart sample, production calendar, apparel production system diagrams, line layout chart, production performance report samples, efficiency report samples, production control checklist, resource planning sheet, manpower allocation chart, machine allocation sheet, production coordination flow chart, departmental communication flow chart, sample production order, calculator, internet connection, speaker, attendance register

Do

- Begin the session by explaining the complete apparel production workflow and connect each stage with production planning and coordination activities.
- Use workflow charts, planning sheets, and production schedules to explain how production activities are organised and monitored in apparel manufacturing.
- Encourage participants to identify the departments involved in planning, scheduling, production control, and coordination through interactive discussions.
- Demonstrate how production performance is monitored using sample reports and explain the role of production metrics in decision-making.
- Reinforce the importance of resource planning and coordination by relating them to timely order completion, quality improvement, and efficient factory operations.

Say

- Welcome everyone! I am excited to continue our learning journey. Today we will understand how apparel production is planned, scheduled, controlled, and coordinated to ensure smooth factory operations.
- In this session, I will help you learn about production workflows, planning, scheduling, production systems, resource allocation, performance measurement, and coordination between different departments.

- By understanding these concepts, you will see how an Apparel Operations Data Specialist contributes to improving productivity, reducing delays, and supporting efficient production through accurate planning and data management.

Ask

- Have you ever made a timetable or schedule before preparing for an exam or completing household work? How did it help you?
- If several people are working on the same task, what might happen if nobody plans who will do which job?
- When a delivery is delayed, what do you think could be some of the reasons behind the delay?

Explain

- Explain the apparel production workflow, including its stages, key features, importance, factors affecting workflow, best practices, and the role of an Apparel Operations Data Specialist in maintaining smooth production flow.
- Describe production planning, its objectives, production scheduling, the difference between planning and scheduling, and the steps involved in organising production activities.
- Discuss the factors affecting production planning and scheduling, their benefits, and the role of an Apparel Operations Data Specialist in preparing and monitoring production plans.
- Explain apparel production systems, different types of production systems, factors influencing their selection, and the importance of selecting the appropriate production system.
- Describe how an Apparel Operations Data Specialist supports the selection and implementation of suitable production systems using production data.
- Explain production control, its objectives, major production control activities, and how production is monitored throughout manufacturing.
- Introduce production performance metrics such as production output, efficiency, quality, rejection rate, line efficiency, and target achievement, along with their importance in factory performance evaluation.
- Explain the role of production reports, daily production performance reports, and best practices followed to achieve effective production control.
- Discuss resource planning, different types of production resources, resource allocation methods, and factors affecting manpower, machine, material, and time allocation.
- Explain production coordination, departments involved, common coordination challenges, and good coordination practices that ensure smooth communication and timely production.

Elaborate

- Apparel production workflow follows a planned sequence of activities from order confirmation to product dispatch. A well-managed workflow reduces delays, improves coordination, ensures better utilisation of resources, and helps achieve production targets within the required timeline.
- Production planning determines what should be produced, when it should be produced, and the resources required for production, while production scheduling prepares a detailed timetable for executing those plans efficiently on the shop floor.

- Effective production planning and scheduling depend on factors such as order quantity, delivery deadlines, machine availability, manpower, material supply, production capacity, and customer requirements. Accurate planning minimises wastage and improves productivity.
- Apparel production systems such as progressive bundle systems, unit production systems, modular production systems, and piece flow systems are selected based on production volume, product complexity, available resources, and factory objectives to maximise efficiency.
- Production control ensures that manufacturing activities follow the planned schedule by continuously monitoring production progress, identifying deviations, resolving bottlenecks, and maintaining production quality and efficiency throughout the process.
- Performance metrics provide measurable indicators of factory performance including production output, line efficiency, quality levels, rejection percentage, machine utilisation, and on-time delivery. These indicators help management make informed operational decisions.
- Resource planning involves identifying and organising manpower, machinery, materials, tools, and production time before manufacturing begins. Proper resource allocation improves workflow balance and prevents idle resources or production delays.
- The Apparel Operations Data Specialist supports planning and production control by collecting production data, updating schedules, preparing reports, analysing performance metrics, and communicating accurate information to supervisors and managers.
- Production coordination requires continuous communication among planning, production, quality, maintenance, stores, merchandising, and warehouse departments. Good coordination ensures uninterrupted workflow and timely completion of customer orders.
- Good coordination practices include regular communication, timely sharing of production information, accurate documentation, proper follow-up, quick issue resolution, and maintaining updated production records that support effective decision-making across departments.

Demonstrate

Demonstrate how a simple production schedule is prepared using a sample production order. Show participants how production dates, manpower, machines, daily production targets, and department coordination are planned and how daily production performance is compared with scheduled targets using a sample production report.

Activity

1. **Name of the Activity:** Plan the Production Workflow
2. **Objective of the Activity:** To help participants understand apparel production workflow, production planning, resource allocation, and coordination between departments through a structured planning exercise.
3. **Resources:** Workflow stage cards, production planning sheets, department name cards, resource allocation chart, marker pens, chart paper, sticky notes
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes

6. Instructions

- Divide the participants into groups of 4–5 members.
- Provide each group with workflow stage cards, department cards, and a blank production planning sheet.
- Ask the groups to arrange the production stages in the correct order and assign the responsible department for each stage.
- Instruct each group to allocate basic resources such as manpower, machines, and materials for every stage of production.
- Ask the participants to prepare a simple production schedule showing the sequence of activities.
- Invite each group to present their production workflow and explain how departments coordinate throughout the production process.
- Conduct a class discussion highlighting correct planning practices and the importance of production coordination.

- 7. Outcome:** Participants understand the sequence of apparel production activities, recognise the importance of production planning and scheduling, identify departmental coordination requirements, and appreciate the role of resource planning and production data in efficient manufacturing.

Notes for Facilitation

- Encourage all participants to actively participate in discussions, planning exercises, and group presentations to improve understanding and confidence.
- Use simple examples from daily life such as planning school events or household activities before connecting the concepts to apparel production planning.
- Emphasise the difference between production planning and production scheduling by using practical factory examples and simple planning formats.
- Reinforce the importance of production performance metrics by explaining how factories monitor efficiency, productivity, quality, and delivery performance every day.
- Highlight that accurate production data, timely reporting, proper resource allocation, and effective coordination are key responsibilities of an Apparel Operations Data Specialist and directly influence production success.

Unit 2.2: Production Monitoring and Performance Management

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain lean manufacturing and quality assurance principles in apparel production.
2. Monitor workflow, machine utilisation, and workstation compliance with safety and quality standards.
3. Analyse production data to identify bottlenecks, delays, and workforce inefficiencies.
4. Implement corrective actions to improve production efficiency and operational performance.
5. Prepare production reports and communication dashboards for performance monitoring.
6. Evaluate production outcomes and workforce performance to support management decision-making.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, lean manufacturing process chart, 5S visual chart, quality assurance checklist, sample quality inspection report, workflow monitoring sheet, shop floor monitoring checklist, machine utilisation report, idle time record sheet, workstation inspection checklist, production data sheets, Microsoft Excel sample workbook, ERP dashboard screenshots, production performance report, production dashboard sample, corrective action report format, process improvement checklist, daily production report, performance evaluation sheet, safety compliance checklist, quality compliance checklist, calculator, internet connection, speaker, attendance register

Do

- Introduce the concepts of lean manufacturing, quality assurance, and production monitoring using simple factory examples and visual process charts.
- Demonstrate how production data is collected, analysed, and converted into reports and dashboards for monitoring factory performance.
- Encourage participants to observe workflow, identify production delays, and discuss methods for improving operational efficiency through interactive questioning.
- Explain production deviations, corrective actions, and process improvement measures using sample production reports and monitoring formats.
- Reinforce the importance of data-driven decision-making by connecting every production activity with the responsibilities of an Apparel Operations Data Specialist.

Say

- Welcome everyone! I am delighted to continue today's learning session. We will now explore how apparel factories monitor production, improve efficiency, maintain quality, and use production data to make better decisions.

- In this session, I will help you understand lean manufacturing, workflow monitoring, production data analysis, corrective actions, production reporting, dashboards, and performance evaluation in apparel manufacturing.
- By learning these concepts, you will understand how an Apparel Operations Data Specialist helps improve factory performance by analysing production data, identifying operational issues, and supporting informed decision-making.

Ask

- Have you ever noticed how a queue moves faster when everyone follows the correct order? What happens when someone interrupts the flow?
- If a machine or computer suddenly stops working while you are doing a task, how does it affect the work?
- When teachers prepare report cards after examinations, why do you think they collect and analyse students' marks before making decisions?

Explain

- Explain lean manufacturing, its principles, common lean tools used in apparel manufacturing, and how lean practices improve productivity, reduce waste, and minimise rework.
- Describe quality assurance, its principles, and how quality assurance supports defect prevention, customer satisfaction, and continuous production improvement.
- Explain workflow monitoring, shop floor monitoring, machine utilisation, causes of low machine utilisation, and methods for identifying idle time and production delays.
- Discuss workstation compliance, monitoring practices, and the role of an Apparel Operations Data Specialist in observing workflow and recording production performance.
- Explain production data, common production data collected on the shop floor, and the systematic steps involved in production data analysis.
- Describe how Microsoft Excel and ERP systems are used to organise, analyse, and present production information for operational monitoring and reporting.
- Explain performance and efficiency metrics, methods for identifying operational issues, and the role of production data in evaluating factory performance.
- Discuss corrective actions, common production deviations, operational bottlenecks, process improvement measures, and the steps involved in implementing corrective actions.
- Explain production reporting, different types of production reports, production dashboards, information displayed on dashboards, and the purpose of daily production reports.
- Describe performance evaluation, workforce assessment, workstation inspections, safety and quality compliance checks, and the importance of production data in supporting management decisions.

Elaborate

- Lean manufacturing focuses on eliminating activities that do not add value while improving workflow, productivity, and customer satisfaction. Common lean tools such as 5S, visual management, and continuous improvement help apparel factories reduce waste and improve operational efficiency.

- Quality assurance aims to prevent production defects by following standard procedures, maintaining quality standards, and continuously monitoring production processes. Effective quality assurance reduces rework, improves product consistency, and increases customer confidence.
- Workflow and shop floor monitoring ensure that production activities move according to plan without unnecessary delays. Monitoring machine utilisation, idle time, workstation compliance, and production progress helps supervisors identify operational problems quickly.
- Machine utilisation measures how effectively machines are used during production. Low utilisation may result from breakdowns, poor planning, material shortages, operator absence, or maintenance issues, reducing overall production efficiency.
- Production data includes information such as output quantity, efficiency, rejection rate, attendance, machine utilisation, downtime, and work-in-progress. Accurate production data supports planning, monitoring, reporting, and performance improvement across departments.
- Microsoft Excel and ERP systems help organise production information, generate calculations, prepare reports, create charts, monitor trends, and provide real-time visibility of factory operations for faster decision-making.
- Corrective actions are systematic measures taken to eliminate production problems and prevent them from recurring. Identifying bottlenecks, analysing deviations, implementing solutions, and monitoring improvements contribute to continuous operational excellence.
- Production reports and dashboards summarise important factory information including production targets, actual output, efficiency, quality performance, machine status, and pending orders. Dashboards present information visually, enabling managers to make quick operational decisions.
- Performance evaluation measures workforce productivity, production efficiency, quality performance, safety compliance, and adherence to production targets. Regular inspections ensure workstations follow standard operating procedures and maintain quality standards.
- The Apparel Operations Data Specialist plays a key role by collecting, analysing, verifying, reporting, and interpreting production data. Accurate reporting supports production monitoring, corrective actions, resource optimisation, and informed managerial decision-making.

Demonstrate



Demonstrate how production data is entered into a simple Microsoft Excel sheet and converted into a daily production report showing planned production, actual production, efficiency percentage, machine utilisation, rejection quantity, and production status. Explain how this information helps identify operational issues and supports management decisions.

Activity



1. **Name of the Activity:** Prepare a Simple Production Dashboard
2. **Objective of the Activity:** To help participants understand production monitoring, production reporting, performance metrics, and dashboard preparation using basic production data.
3. **Resources:** Sample production data sheets, calculator, printed dashboard template, Microsoft Excel sample printout, marker pens, chart paper, sticky notes
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes

6. Instructions

- Divide the participants into groups of 4–5 members.
- Provide each group with a sample production data sheet containing production targets, actual output, machine utilisation, rejection quantity, and attendance details.
- Ask each group to calculate basic performance indicators such as production achievement, efficiency, and rejection percentage using the provided data.
- Instruct the participants to complete a simple production dashboard template using the calculated values.
- Ask the groups to identify one operational issue and suggest one corrective action based on the dashboard information.
- Invite each group to present their completed dashboard and explain their observations.
- Summarise the activity by highlighting the importance of production monitoring, reporting, and data-driven decision-making.

- 7. Outcome:** Participants understand how production data is analysed, how basic production dashboards are prepared, how operational issues are identified, and how production reports support effective performance management and decision-making.

Notes for Facilitation

- Encourage active participation by allowing every participant to interpret production data and contribute during group discussions and presentations.
- Use simple numerical examples and visual formats to explain production reports and performance metrics so that beginners can understand them easily.
- Emphasise that lean manufacturing and quality assurance are continuous improvement practices that reduce waste, improve productivity, and minimise production defects.
- Reinforce the importance of accurate data collection and timely production reporting, as incorrect information can lead to poor planning and ineffective management decisions.
- Highlight that the Apparel Operations Data Specialist plays a critical role in monitoring production performance, identifying operational issues, supporting corrective actions, and providing reliable data for continuous process improvement.

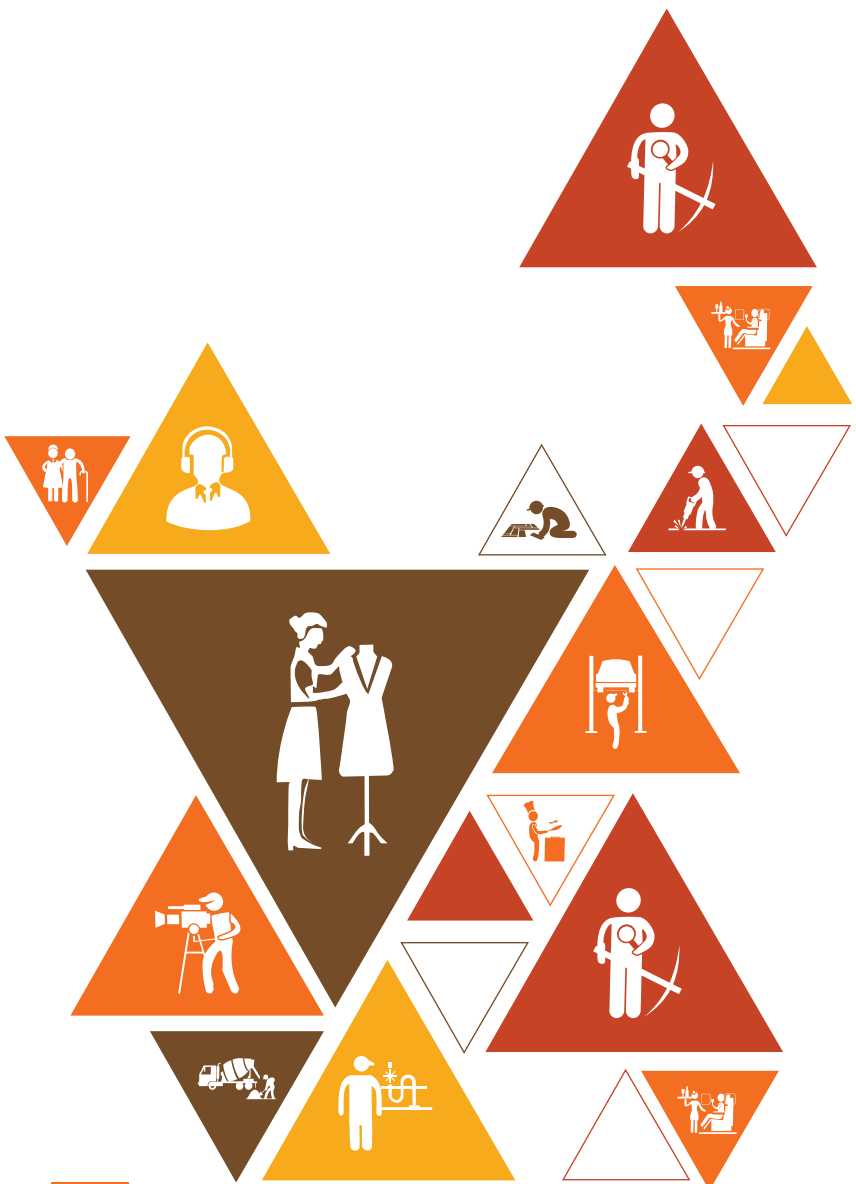
Answers to Exercises for PHB

Multiple Choice Questions:

1. b. To plan resources and meet production targets efficiently
2. c. Modular Production System
3. a. Microsoft Excel and ERP Systems
4. b. 5S
5. d. Production Dashboard

Descriptive Questions:

1. Refer Unit 2.1: Apparel Production Planning and Coordination
Topic: 2.1.1 Apparel Production Workflow
2. Refer Unit 2.1: Apparel Production Planning and Coordination
Topic: 2.1.2 Production Planning and Scheduling
Topic: 2.1.5 Resource Planning and Allocation
3. Refer Unit 2.1: Apparel Production Planning and Coordination
Topic: 2.1.3 Apparel Production Systems
4. Refer Unit 2.2: Production Monitoring and Performance Management
Topic: 2.2.1 Lean Manufacturing and Quality Assurance
5. Refer Unit 2.2: Production Monitoring and Performance Management
Topic: 2.2.5 Production Reporting and Dashboards
Topic: 2.2.6 Performance Evaluation and Decision Support





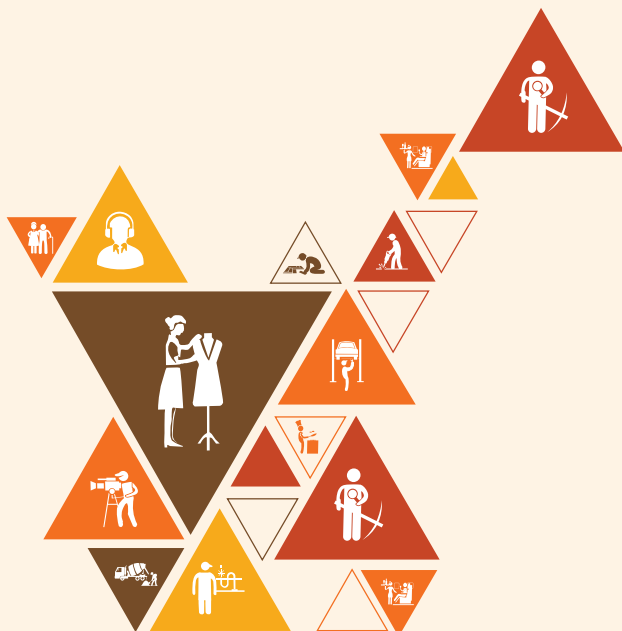
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3. Design Efficient Line Layouts and Manage WIP Flow

Unit 3.1 - Line Layout Design and Workflow Planning

Unit 3.2 - WIP Management and Line Performance Improvement



AMH/N2107

Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Explain the principles of line layout design and workflow organisation in apparel production.
2. Differentiate between production line layouts and their applications in apparel manufacturing.
3. Interpret WIP management concepts, workflow balancing techniques, and lean manufacturing principles.
4. Analyse production data, efficiency reports, and time study results to identify bottlenecks and production delays.
5. Design optimised production line layouts to improve workflow and reduce material handling.
6. Apply time study methods to measure operation cycle times and allocate machines and operators efficiently.
7. Balance production lines to achieve uniform workflow, controlled WIP, and improved output.
8. Monitor WIP movement and workflow using visual tracking and kanban systems.
9. Coordinate with production and quality teams to maintain smooth operations and minimise defects.
10. Prepare layout optimisation reports and evaluate line performance using productivity, throughput, and WIP metrics for continuous improvement.

Unit 3.1: Line Layout Design and Workflow Planning

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain the principles of line layout design and workflow organisation in apparel production.
2. Differentiate between production line layouts and their applications.
3. Interpret WIP management concepts, workflow balancing techniques, and lean manufacturing principles.
4. Analyse production data, efficiency reports, and time study results to identify bottlenecks.
5. Design optimised production line layouts to improve workflow and reduce material handling.
6. Apply time study methods to allocate machines and operators efficiently.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, sample apparel production line layout diagrams, production workflow charts, factory floor layout plans, workstation layout illustrations, line balancing chart, work-in-progress tracking sheet, lean manufacturing visual charts, motion economy illustrations, bottleneck analysis worksheet, time study observation sheet, stopwatch, efficiency report samples, production line mapping template, machine allocation chart, operator skill matrix, operation cycle time sheet, sample production data, calculator, internet connection, speaker, attendance register

Do

- Introduce the concept of line layout design using simple production flow diagrams and explain how an organised layout improves productivity and workflow.
- Demonstrate different production line layouts and discuss how layout selection depends on production requirements, available resources, and product type.
- Guide participants through examples of WIP management, bottleneck identification, and line balancing using visual charts and sample production data.
- Explain how time studies, efficiency reports, and production line mapping help improve workflow and optimise production layouts.
- Reinforce the role of the Apparel Operations Data Specialist by connecting production data with machine allocation, operator allocation, and workflow optimisation.

Say

- Welcome everyone! I am excited to begin today's session where we will learn how production lines are designed and organised to achieve smooth and efficient apparel manufacturing.
- In this session, I will help you understand line layout design, production workflows, work-in-progress management, bottleneck identification, layout optimisation, and the allocation of machines and operators.

- By understanding these concepts, you will appreciate how proper workflow planning and data analysis improve productivity, reduce delays, and support efficient factory operations.

Ask



- Have you ever rearranged furniture or study materials to make it easier to move around or complete your work?
- If several people are working together but one person takes much longer than everyone else, what effect will it have on the entire group's work?
- Why do you think people arrange tools or equipment close to where they are needed instead of placing them far away?

Explain



- Explain line layout design, its principles, workflow organisation, and the factors affecting the design of production lines in apparel manufacturing.
- Describe different types of apparel production line layouts, factors influencing layout selection, and the role of an Apparel Operations Data Specialist in selecting suitable production layouts.
- Explain work-in-progress (WIP), workflow balancing, lean manufacturing principles, and motion economy techniques used to improve production efficiency.
- Discuss the importance of maintaining balanced workflow and controlling WIP to minimise production delays and improve line performance.
- Explain bottlenecks, time studies, production data analysis, efficiency reports, production line mapping, and methods for identifying idle workstations.
- Describe how production data helps identify bottlenecks, monitor operator performance, and improve workflow balance.
- Explain line layout optimisation, the steps involved, methods to reduce unnecessary material handling, and the characteristics of an optimised production layout.
- Discuss machine allocation based on operation requirements, production targets, and available equipment.
- Explain operator allocation based on skill level, operation cycle time, and production requirements to maintain balanced workflow.
- Highlight the role of the Apparel Operations Data Specialist in analysing workflow data, supporting layout improvements, monitoring efficiency, and optimising production performance.

Elaborate



- Line layout design refers to arranging machines, workstations, materials, and operators in a systematic manner to ensure smooth movement of work throughout the production process. A well-designed layout improves productivity, reduces delays, and enhances operational efficiency.
- Different production line layouts such as straight line, U-shaped line, modular layout, and process layout are selected based on product type, production volume, available space, workforce, and factory objectives. Selecting the right layout supports better workflow and resource utilisation.

- Work-in-progress represents partially completed garments moving between production stages. Effective WIP management ensures balanced production flow, prevents excessive inventory accumulation, reduces waiting time, and supports continuous production.
- Lean manufacturing principles and motion economy focus on eliminating waste, reducing unnecessary movement, improving workplace organisation, and simplifying production activities. These practices help increase productivity while maintaining product quality.
- Bottlenecks occur when one workstation operates more slowly than others, causing production delays and reducing overall line efficiency. Identifying bottlenecks through observation and production data allows timely corrective actions.
- Time study measures the time required to complete individual operations under normal working conditions. Combined with efficiency reports and production line mapping, time studies help balance workloads and improve operator productivity.
- Production data analysis enables supervisors to monitor output, identify idle stations, evaluate workstation performance, and detect workflow imbalances. Accurate data supports informed decisions for continuous process improvement.
- Line layout optimisation involves rearranging workstations, reducing unnecessary transportation, improving material flow, balancing workloads, and ensuring efficient communication between operators to achieve higher production efficiency.
- Machine allocation ensures appropriate equipment is assigned to each production operation according to process requirements, while operator allocation matches workers' skills and operation cycle times with suitable tasks to improve line balance.
- The Apparel Operations Data Specialist contributes by analysing workflow performance, monitoring WIP levels, preparing efficiency reports, supporting layout optimisation, identifying bottlenecks, and providing data for machine and operator allocation decisions.

Demonstrate

Demonstrate a simple production line layout using workstation cards placed in sequence. Rearrange the workstations to show how changing the layout reduces unnecessary movement, balances workflow, minimises bottlenecks, and improves production efficiency. Use a sample time study sheet to explain operator allocation based on operation cycle time.

Activity

1. **Name of the Activity:** Design an Efficient Production Line
2. **Objective of the Activity:** To help participants understand production line layout, workflow planning, work-in-progress management, and machine and operator allocation through a practical layout planning exercise.
3. **Resources:** Production workstation cards, layout template sheets, machine cards, operator cards, marker pens, chart paper, sticky notes, production workflow chart
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes

6. Instructions

- Divide the participants into groups of 4–5 members.
- Provide each group with workstation cards, machine cards, operator cards, and a blank production line layout template.
- Ask the participants to arrange the workstations in a logical production sequence.
- Instruct each group to allocate machines and operators to each workstation based on the production process.
- Ask the groups to identify one possible bottleneck and suggest a layout improvement to reduce workflow delays.
- Invite each group to present their completed layout and explain their machine and operator allocation decisions.
- Conduct a class discussion comparing different layouts and highlighting the characteristics of an efficient production line.

- 7. Outcome:** Participants understand the principles of production line layout design, workflow planning, WIP management, bottleneck identification, and the importance of balanced machine and operator allocation for efficient apparel manufacturing.

Notes for Facilitation

- Encourage all participants to contribute during discussions and group activities so that everyone develops confidence in analysing production layouts.
- Use simple diagrams, floor plans, and visual examples to explain workflow concepts before introducing technical terminology.
- Emphasise that balanced production lines reduce waiting time, improve productivity, minimise work-in-progress, and support timely order completion.
- Reinforce the importance of time studies, efficiency reports, and production data in identifying bottlenecks and improving workflow planning.
- Highlight that the Apparel Operations Data Specialist plays a significant role in analysing production data, supporting layout optimisation, balancing workloads, and improving overall production efficiency through informed decision-making.

Unit 3.2: WIP Management and Line Performance Improvement

Unit Objectives

By the end of this unit, the participants will be able to:

1. Balance production lines to achieve uniform workflow and improved output.
2. Monitor WIP movement using visual tracking and kanban systems.
3. Coordinate with production and quality teams to maintain smooth operations and minimise defects.
4. Analyse workflow simulations and line performance to evaluate layout efficiency.
5. Prepare layout optimisation reports using time study data and visual charts.
6. Evaluate line performance using productivity, throughput, and WIP metrics to support continuous improvement.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, production line balancing chart, workstation allocation chart, operation sequence chart, WIP monitoring sheet, Kanban cards, Kanban board, visual tracking board, production status cards, production and quality coordination flow chart, workflow simulation diagram, sample production data sheets, performance analysis worksheet, layout optimisation report sample, time study sheet, stopwatch, operation cycle time recording sheet, visual performance charts, line efficiency report, continuous improvement checklist, line performance evaluation sheet, calculator, internet connection, speaker, attendance register

Do

- Introduce production line balancing by explaining how balanced workloads improve productivity and reduce production delays using simple visual examples.
- Demonstrate WIP monitoring, Kanban systems, and visual tracking methods to show how production flow is controlled on the shop floor.
- Encourage participants to analyse production and quality coordination activities using workflow charts and production monitoring formats.
- Explain workflow simulation, layout optimisation reporting, and performance evaluation using sample production data and visual reports.
- Reinforce the importance of continuous improvement by relating production monitoring and data analysis to the daily responsibilities of an Apparel Operations Data Specialist.

Say

- Welcome everyone! I am happy to continue today's session where we will learn how balanced production lines, effective WIP management, and continuous improvement contribute to efficient apparel manufacturing.

- In this session, I will help you understand production line balancing, WIP monitoring, Kanban systems, workflow simulation, layout optimisation reporting, and methods for evaluating line performance.
- By understanding these concepts, you will see how an Apparel Operations Data Specialist helps improve productivity, reduce production delays, and support continuous operational improvement through accurate production data.

Ask

- Have you ever stood in a long queue where one counter was very slow while others had very few people? What happened to the overall waiting time?
- When you organise your books or study materials, do you arrange them so that they are easy to find and use? Why?
- If a team is working together and one person finishes much earlier than the others, what effect does that have on the team's work?

Explain

- Explain production line balancing, its objectives, steps involved, and different methods used to balance production lines in apparel manufacturing.
- Describe WIP monitoring, visual tracking methods, Kanban systems, and their role in maintaining smooth production flow and controlling inventory.
- Discuss the responsibilities of production and quality teams, coordination activities between departments, and methods for minimising production defects.
- Explain workflow simulation, the steps involved, performance analysis techniques, output variations, and methods for validating production line efficiency.
- Describe layout optimisation reports, their purpose, and the role of time studies in improving production layouts.
- Explain methods for recording operation cycle time and using visual charts for production reporting and layout improvement.
- Discuss the concept of continuous improvement and its importance in maintaining efficient production systems.
- Explain line performance evaluation using productivity, efficiency, quality, and workflow indicators.
- Highlight the importance of analysing production data for identifying improvement opportunities and supporting operational decision-making.
- Explain the role of an Apparel Operations Data Specialist in monitoring WIP, analysing workflow, preparing reports, and supporting continuous improvement initiatives.

Elaborate

- Production line balancing distributes work evenly among operators and workstations so that each operation takes approximately the same amount of time. Proper balancing reduces waiting time, improves productivity, minimises bottlenecks, and increases line efficiency.

- WIP monitoring involves continuously tracking partially completed garments as they move through production. Maintaining appropriate WIP levels prevents congestion, improves workflow continuity, reduces production delays, and supports timely order completion.
- Visual tracking methods such as colour-coded boards, status cards, and production displays provide immediate information about production progress. Kanban systems regulate material movement by signalling when additional work or materials are required, reducing excess inventory.
- Production and quality teams work together throughout manufacturing by coordinating inspections, resolving quality issues, monitoring production standards, and ensuring products meet customer requirements before progressing to the next operation.
- Workflow simulation creates a model of the production process before implementing layout changes. Simulations help evaluate workflow, identify bottlenecks, analyse output variations, and validate whether proposed improvements will increase production efficiency.
- Layout optimisation reports summarise observations related to workstation arrangement, workflow efficiency, bottlenecks, material movement, and improvement recommendations. These reports support data-driven decisions for optimising production layouts.
- Time studies measure the duration required for each production operation, while operation cycle time recording helps compare operator performance and identify opportunities for balancing workloads more effectively.
- Visual charts such as line balancing charts, production graphs, WIP charts, and efficiency reports present production information in an easy-to-understand format, allowing supervisors and managers to monitor performance quickly.
- Continuous improvement encourages regular evaluation of production processes to eliminate waste, improve quality, increase efficiency, and adapt to changing production requirements through small but consistent improvements.
- The Apparel Operations Data Specialist supports line performance improvement by monitoring production data, maintaining WIP records, preparing optimisation reports, analysing workflow performance, and assisting management in implementing continuous improvement initiatives.

Demonstrate



Demonstrate a simple production line balancing exercise using workstation cards and operation times. Rearrange operator assignments to balance workloads, use Kanban cards to control WIP movement between workstations, and prepare a basic line performance chart showing improvements in workflow and efficiency.

Activity



1. **Name of the Activity:** Balance the Production Line
2. **Objective of the Activity:** To help participants understand production line balancing, WIP monitoring, workflow improvement, and line performance evaluation through a practical production planning exercise.
3. **Resources:** Workstation cards, operation time cards, Kanban cards, WIP tracking sheet, production layout template, marker pens, chart paper, sticky notes
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes

6. Instructions

- Divide the participants into groups of 4–5 members.
- Provide each group with workstation cards, operation time cards, Kanban cards, and a WIP tracking sheet.
- Ask the participants to arrange the workstations in production order and assign operation times.
- Instruct the groups to identify any imbalance or bottleneck in the production line based on the operation times.
- Ask the participants to rebalance the line by adjusting workstation assignments and placing Kanban cards to indicate material movement.
- Request each group to record their observations on a simple line performance evaluation sheet.
- Invite the groups to present their balanced production line and explain how their changes improved workflow and productivity.

- 7. Outcome:** Participants understand the concepts of production line balancing, WIP monitoring, Kanban systems, workflow improvement, layout optimisation, and continuous performance evaluation while recognising the role of production data in improving apparel manufacturing efficiency.

Notes for Facilitation

- Encourage every participant to actively participate in the activity so that all learners gain confidence in analysing production workflows and balancing production lines.
- Use simple diagrams, coloured cards, and visual tracking methods to explain WIP movement and Kanban concepts before introducing technical terminology.
- Emphasise that balanced production lines, controlled WIP, and effective coordination between production and quality teams improve productivity and reduce defects.
- Reinforce the importance of time studies, layout optimisation reports, and performance evaluation as tools for continuous improvement in apparel manufacturing.
- Highlight that the Apparel Operations Data Specialist plays a vital role in monitoring workflow, analysing production data, preparing improvement reports, supporting line balancing, and assisting management in enhancing overall production performance.

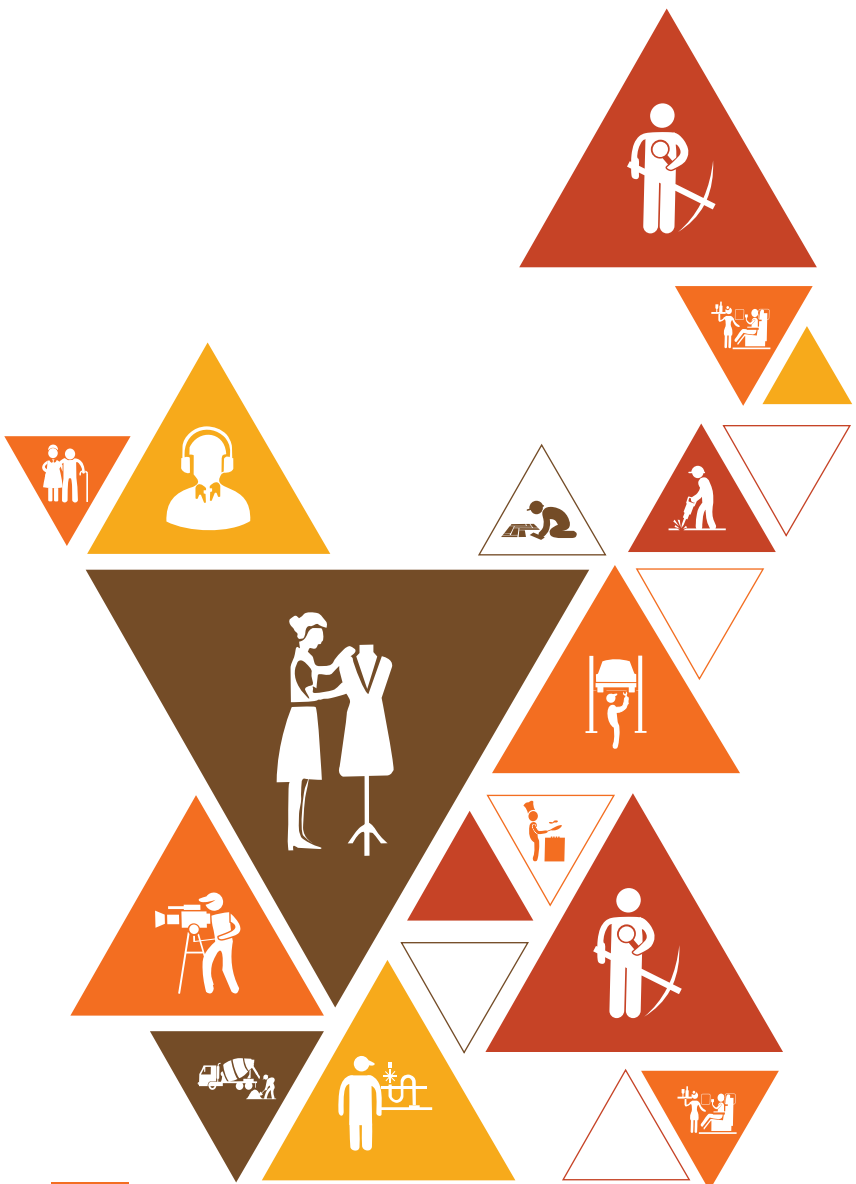
Answers to Exercises for PHB

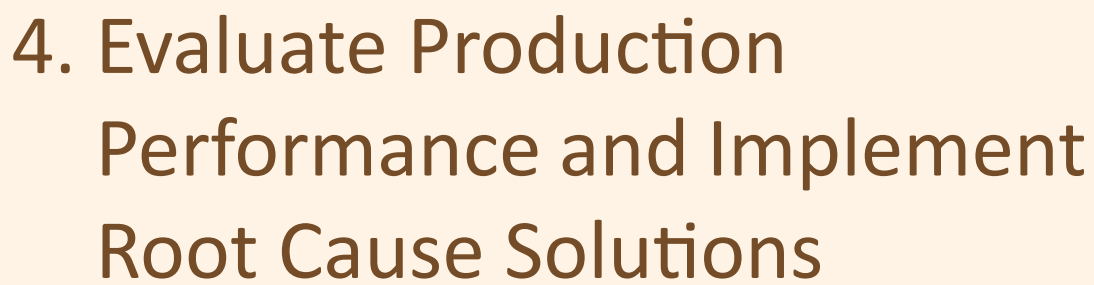
Multiple Choice Questions:

1. b. To reduce material handling and improve workflow
2. c. Modular Line Layout
3. a. Work-in-Progress
4. c. Time Study
5. d. Kanban System

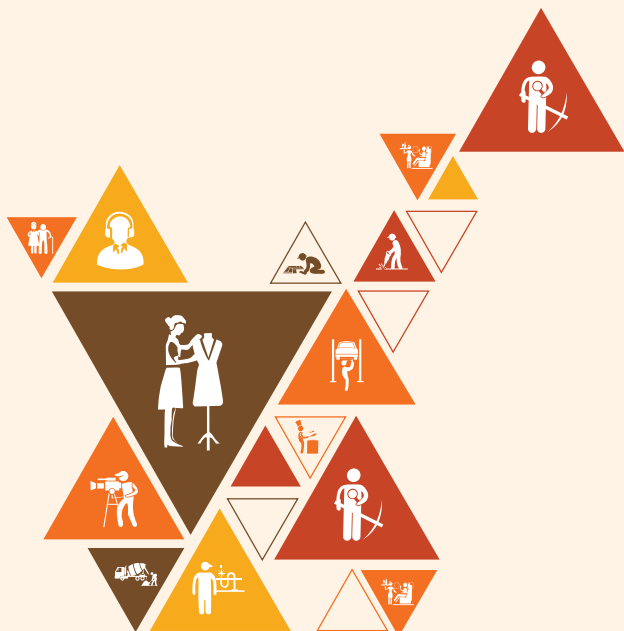
Descriptive Questions:

1. Refer Unit 3.1: Line Layout Design and Workflow Planning
Topic: 3.1.1 Principles of Line Layout Design
Topic: 3.1.2 Types of Production Line Layouts
2. Refer Unit 3.1: Line Layout Design and Workflow Planning
Topic: 3.1.3 WIP Management and Lean Principles
3. Refer Unit 3.1: Line Layout Design and Workflow Planning
Topic: 3.1.4 Bottleneck Identification and Time Study
4. Refer Unit 3.2: WIP Management and Line Performance Improvement
Topic: 3.2.1 Production Line Balancing
Topic: 3.2.2 WIP Monitoring and Kanban Systems
Topic: 3.2.3 Production and Quality Coordination
5. Refer Unit 3.2: WIP Management and Line Performance Improvement
Topic: 3.2.5 Layout Optimisation Reporting
Topic: 3.2.6 Continuous Improvement and Line Performance Evaluation





Unit 4.2 - Root Cause Analysis and Continuous Improvement



AMH/N2108

Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Explain production performance metrics, key performance indicators, and their role in apparel manufacturing.
2. Interpret production reports, digital dashboards, and performance data to evaluate efficiency, productivity, capacity utilisation, and defect rates.
3. Analyse production losses, bottlenecks, and operational deviations using production data.
4. Apply root cause analysis tools, including Pareto Chart, Fishbone Diagram, and 5 Whys, to identify production issues.
5. Develop corrective and preventive action plans using DMAIC and continuous improvement methodologies.
6. Apply lean manufacturing principles and quality improvement tools to enhance production performance.
7. Implement improvement initiatives and monitor their impact using performance data and audit tools.
8. Collaborate with production, quality, and maintenance teams to resolve operational and quality issues.
9. Prepare and present production performance reports, visual charts, and benchmarking results.
10. Evaluate the effectiveness of improvement measures through benchmarking and continuous performance review.

Unit 4.1: Production Performance Evaluation

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain production performance metrics and key performance indicators used in apparel manufacturing.
2. Interpret production reports, digital dashboards, and performance data.
3. Analyse production losses, bottlenecks, and operational deviations.
4. Evaluate production performance using benchmarking techniques and performance metrics.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, production performance metrics chart, KPI reference sheet, sample production data sheets, efficiency report samples, productivity report samples, capacity utilisation report, target achievement report, production data collection format, daily production report, line performance report, digital dashboard screenshots, sample production dashboard, production loss analysis sheet, bottleneck analysis worksheet, operational deviation report, performance benchmarking template, benchmarking comparison chart, calculator, internet connection, speaker, attendance register

Do

- Begin the session by introducing production performance metrics and KPIs using simple examples that participants can relate to from daily activities.
- Demonstrate how production reports and dashboards present factory performance and guide participants in interpreting the information displayed.
- Explain production losses, bottlenecks, and operational deviations using sample reports and encourage participants to identify possible causes.
- Discuss the concept of benchmarking by comparing sample production performance data and explaining how factories measure improvement.
- Reinforce the importance of accurate production data and performance evaluation by linking each topic to the responsibilities of an Apparel Operations Data Specialist.

Say

- Welcome everyone! I am excited to begin today's session where we will learn how apparel factories evaluate production performance and use production data to improve efficiency and achieve business goals.
- In this session, I will help you understand production performance metrics, KPIs, production reports, digital dashboards, bottleneck analysis, production losses, and performance benchmarking.
- By learning these concepts, you will understand how production data helps managers make better decisions and how an Apparel Operations Data Specialist contributes to improving factory performance.

Ask

- Have you ever compared your exam marks or sports performance with your previous results to see whether you improved?
- When you receive a progress report or scorecard, what information do you usually look at first?
- If one member of a team is unable to complete work on time, how does it affect the performance of the whole team?

Explain

- Explain production performance metrics, common production performance measures, and the relationship between efficiency, productivity, capacity utilisation, and target achievement.
- Describe Key Performance Indicators (KPIs), their importance in apparel manufacturing, and the role of production data collection in measuring performance.
- Explain production reports, common production reports, digital dashboards, and the methods used to interpret production reports and dashboard information.
- Discuss how production reports and dashboards help identify underperforming production lines, workstations, or departments.
- Explain production losses, different types of production losses, and their impact on productivity, quality, delivery performance, and operational efficiency.
- Describe bottlenecks, operational deviations, and methods used to identify and resolve production bottlenecks using production data.
- Explain the importance of analysing production performance regularly to improve workflow, minimise losses, and increase production efficiency.
- Discuss performance benchmarking, the concept of comparing performance against standards or best practices, and the measures commonly used for benchmarking.
- Explain the steps involved in performance benchmarking and how benchmarking supports continuous production improvement.
- Highlight the role of an Apparel Operations Data Specialist in collecting, analysing, interpreting, and reporting production performance data for operational decision-making.

Elaborate

- Production performance metrics are measurable indicators used to evaluate factory operations. Common metrics include production output, efficiency, productivity, capacity utilisation, rejection percentage, target achievement, and machine utilisation, which help assess operational performance accurately.
- Key Performance Indicators (KPIs) represent critical measurements that reflect organisational goals and production objectives. Reliable production data collection ensures KPIs remain accurate and supports timely monitoring of factory performance.
- Production reports summarise operational information such as daily output, efficiency, attendance, quality performance, and production status. Digital dashboards display this information visually through charts, graphs, and indicators, enabling faster understanding and decision-making.
- Interpreting production reports and dashboards allows supervisors and managers to compare planned and actual performance, identify underperforming production lines, monitor trends, and initiate corrective actions before problems become more serious.

- Production losses include wasted time, excessive material usage, machine downtime, quality defects, idle operators, and production delays. Reducing these losses improves productivity, lowers production costs, and increases customer satisfaction.
- Bottlenecks occur when one operation limits the overall speed of production. Analysing operational deviations and production data helps identify bottlenecks early, allowing corrective actions to restore smooth production flow.
- Performance evaluation enables factories to monitor operational efficiency continuously, compare actual results with production targets, and identify opportunities for improving workflow, quality, and resource utilisation.
- Performance benchmarking compares current production performance with established standards, previous performance, or industry best practices. Benchmarking helps organisations identify strengths, weaknesses, and improvement opportunities.
- The benchmarking process includes selecting performance measures, collecting data, comparing results, identifying performance gaps, implementing improvements, and monitoring progress to achieve higher operational standards.
- The Apparel Operations Data Specialist supports performance evaluation by maintaining accurate production records, preparing reports and dashboards, analysing performance indicators, identifying operational issues, and providing reliable information for management decisions.

Demonstrate

Demonstrate how to interpret a sample daily production report and digital dashboard by comparing production targets with actual output, efficiency, capacity utilisation, and rejection levels. Show participants how underperforming sections can be identified and how production data supports corrective actions and benchmarking.

Activity

1. **Name of the Activity:** Analyse the Production Dashboard
2. **Objective of the Activity:** To help participants understand production performance metrics, production reports, KPIs, bottleneck identification, and performance benchmarking through practical data interpretation.
3. **Resources:** Sample production reports, printed digital dashboard, KPI reference sheet, production data sheets, benchmarking template, calculator, marker pens, chart paper
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes
6. **Instructions**
 - Divide the participants into groups of 4–5 members.
 - Provide each group with a sample production report, digital dashboard, and KPI reference sheet.
 - Ask the participants to compare production targets with actual production results shown in the reports.
 - Instruct each group to identify one underperforming section and one possible production bottleneck based on the available data.
 - Ask the groups to compare the production results with the benchmarking template and identify areas requiring improvement.

- Request each group to present their observations and explain the reasons for the performance gaps they identified.
 - Summarise the activity by discussing how production reports and dashboards support performance evaluation and operational decision-making.
7. **Outcome:** Participants develop the ability to interpret production reports, understand KPIs, identify bottlenecks, compare production performance with benchmarks, and recognise how production data supports continuous improvement in apparel manufacturing.

Notes for Facilitation

- Encourage all participants to actively analyse production reports and dashboards rather than simply reading the information presented.
- Use simple numerical examples and visual charts to explain production metrics and KPIs before introducing technical production terminology.
- Emphasise that production reports, dashboards, and benchmarking are management tools used to monitor performance, identify operational issues, and support timely corrective actions.
- Reinforce the importance of accurate production data collection because reliable reports and KPIs depend on complete and error-free information.
- Highlight that the Apparel Operations Data Specialist plays a key role in collecting production data, preparing reports, interpreting performance indicators, identifying bottlenecks, and supporting management with data-driven decision-making.

Unit 4.2: Root Cause Analysis and Continuous Improvement

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain the principles of root cause analysis and continuous improvement.
2. Apply Pareto Chart, Fishbone Diagram, and 5 Whys to identify production issues.
3. Develop corrective and preventive action plans using DMAIC methodology.
4. Apply lean manufacturing and quality improvement tools to enhance production performance.
5. Collaborate with cross-functional teams to implement corrective actions and resolve operational issues.
6. Evaluate the effectiveness of improvement initiatives through performance reviews and continuous monitoring.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, root cause analysis flowchart, Pareto chart template, Fishbone diagram template, 5 Whys worksheet, sample production problem reports, CAPA format, DMAIC process chart, improvement documentation template, post-action review checklist, Kaizen activity sheet, 5S visual poster, Poka-Yoke examples, Value Stream Mapping template, AI-enabled dashboard screenshots, digital production dashboard sample, communication flowchart, audit checklist, performance review format, visual production reports, calculator, internet connection, speaker, attendance register

Do

- Introduce root cause analysis by using simple everyday examples before relating the concepts to production problems in apparel manufacturing.
- Demonstrate the use of Pareto charts, Fishbone diagrams, and the 5 Whys technique with sample production issues and explain how each tool supports problem-solving.
- Guide participants through the CAPA process and explain how corrective and preventive actions improve production quality and operational efficiency.
- Discuss lean manufacturing tools, AI-enabled dashboards, and cross-functional collaboration using practical production examples and visual aids.
- Reinforce the importance of continuous improvement by connecting production analysis, teamwork, and performance reviews with the role of an Apparel Operations Data Specialist.

Say

- Welcome everyone! I am excited to begin today's session where we will learn how production problems are analysed, corrected, and prevented to achieve continuous improvement in apparel manufacturing.
- In this session, I will help you understand root cause analysis, problem-solving tools, CAPA, lean manufacturing practices, teamwork across departments, and performance review methods.

- By learning these concepts, you will understand how data-driven problem-solving helps improve productivity, reduce defects, and support continuous improvement in apparel manufacturing.

Ask

- Have you ever tried to find the real reason why something repeatedly goes wrong instead of solving only the immediate problem?
- When a household appliance stops working, do people usually try to identify the actual cause before repairing it? Why?
- If the same mistake happens again and again, what do you think is a better solution—fixing it every time or finding the reason behind it?

Explain

- Explain root cause analysis, its principles, and the common production problems that require systematic root cause identification.
- Describe the Pareto Chart, Fishbone Diagram, and 5 Whys Technique, their purposes, preparation methods, and how to select the appropriate problem-solving tool.
- Explain corrective and preventive action (CAPA), the DMAIC methodology, CAPA planning, documentation of improvements, and post-action analysis.
- Discuss lean manufacturing tools including Kaizen, 5S, Poka-Yoke, and Value Stream Mapping (VSM) and explain how they improve production performance and quality.
- Describe the use of AI-enabled tools and digital dashboards for monitoring production, identifying trends, and supporting operational improvements.
- Explain cross-functional collaboration, the importance of communication, and how different departments work together to implement corrective actions successfully.
- Discuss performance reviews, real-time performance analysis, and the use of checklists, audit formats, and visual reports for continuous monitoring.
- Explain how production data supports quality improvement, operational efficiency, and continuous process improvement.
- Highlight the importance of documenting improvement activities and reviewing their effectiveness after implementation.
- Explain the role of an Apparel Operations Data Specialist in analysing production data, supporting RCA, preparing reports, monitoring corrective actions, and contributing to continuous improvement initiatives.

Elaborate

- Root cause analysis is a structured method used to identify the actual reason behind production problems rather than addressing only visible symptoms. Understanding the root cause helps prevent recurring issues and supports long-term production improvement.
- Problem-solving tools such as Pareto Charts, Fishbone Diagrams, and the 5 Whys Technique help teams systematically analyse production issues. Each tool provides a different approach for identifying the most significant causes and selecting appropriate solutions.

- Corrective and Preventive Action (CAPA) focuses on eliminating existing problems while preventing future occurrences. The DMAIC methodology provides a structured process for defining problems, measuring performance, analysing causes, implementing improvements, and maintaining effective controls.
- Proper documentation of corrective actions, implemented improvements, and post-action analysis ensures that organisations maintain records of improvement activities and evaluate whether corrective measures successfully resolved production issues.
- Lean manufacturing tools such as Kaizen encourage continuous small improvements, 5S improves workplace organisation, Poka-Yoke prevents human errors, and Value Stream Mapping identifies non-value-added activities within production processes.
- AI-enabled tools and digital dashboards provide real-time production information, automated data analysis, visual performance indicators, and trend monitoring, enabling faster identification of operational issues and more informed decision-making.
- Cross-functional collaboration brings together production, quality, planning, maintenance, merchandising, and other departments to solve problems collectively. Effective communication ensures corrective actions are implemented consistently throughout the organisation.
- Performance reviews involve regular evaluation of production efficiency, quality performance, workflow effectiveness, and operational improvements using real-time data, audit checklists, and visual reports that support continuous monitoring.
- Continuous improvement depends on regularly analysing production data, reviewing operational performance, implementing improvement initiatives, and measuring their effectiveness to achieve higher productivity, better quality, and reduced operational waste.
- The Apparel Operations Data Specialist plays an essential role by collecting production data, supporting root cause analysis, preparing analytical reports, monitoring improvement activities, maintaining documentation, and assisting management in making data-driven operational decisions.

Demonstrate

Demonstrate the analysis of a simple production issue by using the 5 Whys Technique and a Fishbone Diagram. Show participants how the root cause is identified, how a basic CAPA plan is prepared, and how improvements are documented using a simple corrective action format.

Activity

1. **Name of the Activity:** Identify the Root Cause
2. **Objective of the Activity:** To help participants understand root cause analysis, problem-solving tools, CAPA planning, and continuous improvement through a structured production problem analysis exercise.
3. **Resources:** Sample production problem sheets, Fishbone Diagram template, 5 Whys worksheet, Pareto chart template, CAPA format, marker pens, chart paper, sticky notes
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes
6. **Instructions**
 - Divide the participants into groups of 4–5 members.
 - Provide each group with a simple production problem sheet and a Fishbone Diagram template.

- Ask the participants to identify possible causes of the problem using the Fishbone Diagram.
- Instruct each group to apply the 5 Whys Technique to identify the root cause of the production issue.
- Ask the participants to prepare a basic CAPA plan that includes one corrective action and one preventive action.
- Request each group to present their findings and explain how their proposed actions would improve production performance.
- Summarise the activity by discussing the importance of structured problem-solving and continuous improvement in apparel manufacturing.

7. Outcome: Participants understand the application of root cause analysis, problem-solving tools, CAPA planning, lean improvement concepts, and cross-functional collaboration while recognising how continuous improvement enhances production efficiency and product quality.

Notes for Facilitation

- Encourage all participants to contribute ideas during group discussions so that they develop confidence in analysing production problems collaboratively.
- Use simple real-life examples before introducing industrial problem-solving techniques to make the concepts easier for beginners to understand.
- Emphasise that corrective actions should eliminate the root cause of a problem, while preventive actions should reduce the possibility of similar problems occurring in the future.
- Reinforce the importance of lean manufacturing tools, performance reviews, and cross-functional collaboration in achieving continuous improvement and operational excellence.
- Highlight that the Apparel Operations Data Specialist plays a key role in collecting production data, supporting root cause analysis, preparing improvement reports, monitoring corrective actions, and providing reliable information for continuous improvement initiatives.

Answers to Exercises for PHB

Multiple Choice Questions:

1. c. Defect Rate
2. b. Pareto Chart
3. b. Analyse
4. c. Poka-Yoke
5. b. To compare production performance with established standards and identify improvement opportunities

Descriptive Questions:

1. Refer Unit 4.1: Production Performance Evaluation
Topic: 4.1.1 Production Performance Metrics and KPIs
2. Refer Unit 4.2: Root Cause Analysis and Continuous Improvement
Topic: 4.2.1 Root Cause Analysis
Topic: 4.2.2 Problem-Solving Tools
3. Refer Unit 4.2: Root Cause Analysis and Continuous Improvement
Topic: 4.2.3 Corrective and Preventive Action Planning
4. Refer Unit 4.2: Root Cause Analysis and Continuous Improvement
Topic: 4.2.4 Lean Manufacturing and Quality Improvement
5. Refer Unit 4.1: Production Performance Evaluation
Topic: 4.1.2 Production Reports and Digital Dashboards
Topic: 4.1.4 Performance Benchmarking
6. Refer Unit 4.2: Root Cause Analysis and Continuous Improvement
Topic: 4.2.5 Cross-Functional Collaboration
Topic: 4.2.6 Performance Review and Continuous Improvement
Topic: 4.3.3 Digital Tracking for Compliance Assurance





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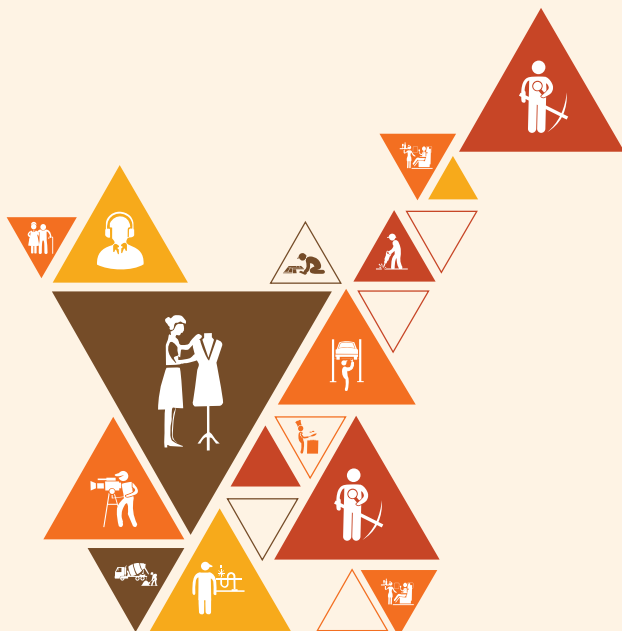
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5. Communicate and Collaborate Across Departments

Unit 5.1 - Communication in Apparel Production

Unit 5.2 - Cross-Department Collaboration and Reporting



AMH/N2109

Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Explain the importance of effective communication and collaboration in apparel production operations.
2. Describe professional communication protocols, reporting formats, and documentation practices for cross-department coordination.
3. Analyse communication gaps, operational delays, and interdepartmental misalignment affecting production.
4. Explain escalation processes and cross-functional coordination for resolving operational issues.
5. Apply professional communication techniques while coordinating with production support departments.
6. Conduct production huddles to communicate targets, resource availability, and operational updates.
7. Monitor team performance and communicate strategies to achieve production goals.
8. Evaluate meeting outcomes and collaborative efforts to identify performance gaps and improvement opportunities.
9. Prepare structured reports, dashboards, and action plans to support management decision-making.
10. Facilitate cross-department collaboration to ensure continuous workflow and timely order execution.

Unit 5.1: Communication in Apparel Production

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain the importance of effective communication in apparel production operations.
2. Describe professional communication protocols, reporting formats, and documentation practices.
3. Analyse communication gaps, operational delays, and interdepartmental misalignment.
4. Explain escalation processes for resolving production and workflow issues.
5. Apply professional communication techniques while coordinating with production support departments.
6. Conduct production huddles to communicate targets, resources, and operational updates.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, workplace communication flow chart, communication protocol chart, department communication matrix, sample communication log, production documentation formats, escalation flowchart, issue reporting form, departmental organisation chart, communication checklist, sample production meeting agenda, daily production briefing format, production huddle checklist, visual communication board, production notice samples, internet connection, speaker, attendance register

Do

- Begin the session by discussing the importance of communication in everyday life and gradually relate it to communication within apparel production environments.
- Explain different communication methods, protocols, and documentation practices using production-related examples and visual communication charts.
- Demonstrate how communication gaps can lead to operational delays and discuss proper escalation procedures for resolving production issues.
- Encourage participants to identify communication responsibilities of different departments and explain the importance of cross-functional coordination.
- Reinforce the role of professional communication and production huddles in maintaining efficient workflow and achieving production targets.

Say

- Welcome everyone! I am happy to begin today's session where we will learn how effective communication helps apparel manufacturing teams work together smoothly and achieve production goals.
- In this session, I will help you understand workplace communication, communication protocols, issue escalation, professional communication practices, and the importance of daily production briefings.
- By learning these concepts, you will understand how clear communication reduces errors, prevents production delays, and supports better teamwork across departments.

Ask

- Have you ever misunderstood someone's instructions because they were not explained clearly? What happened afterward?
- When working on a group assignment, why is it important for every team member to communicate regularly?
- If a problem occurs during work, why should it be reported immediately instead of waiting until later?

Explain

- Explain workplace communication, its importance, different types of communication, and common barriers that affect communication effectiveness.
- Describe communication protocols, standard communication procedures, and the importance of maintaining proper production documentation.
- Explain communication gaps, operational delays, interdepartmental misalignment, and their impact on production efficiency and product quality.
- Discuss the escalation process, reporting operational problems, cross-functional escalation procedures, and timely issue resolution.
- Explain the principles of professional communication, including clarity, accuracy, respect, active listening, and timely information sharing.
- Describe communication with production support departments such as planning, quality, maintenance, stores, merchandising, and human resources.
- Explain production huddles, their objectives, and the importance of conducting regular daily briefings before production activities begin.
- Discuss the role of cross-functional participation during production meetings to improve coordination and operational efficiency.
- Explain how effective communication supports teamwork, improves productivity, reduces production errors, and enhances customer satisfaction.
- Highlight the role of an Apparel Operations Data Specialist in maintaining accurate communication, preparing production documentation, sharing production updates, and supporting operational coordination.

Elaborate

- Workplace communication refers to the exchange of information, instructions, feedback, and updates among employees to ensure production activities are completed accurately and efficiently. Effective communication supports teamwork, coordination, and operational success.
- Workplace communication may be verbal, written, visual, or digital depending on the production requirement. Barriers such as unclear instructions, language differences, poor listening, incomplete information, or delayed communication may negatively affect production performance.
- Communication protocols define the standard methods for sharing production information and maintaining documentation. Following established communication procedures ensures consistency, accountability, and timely information flow across departments.
- Communication gaps occur when important information is delayed, misunderstood, or not communicated properly between departments. Such gaps often result in production delays, material shortages, quality issues, scheduling conflicts, and reduced operational efficiency.

- Escalation is the formal process of reporting operational issues to the appropriate authority when problems cannot be resolved at the current level. Timely escalation prevents small production issues from becoming major operational challenges.
- Cross-functional escalation encourages coordination among production, quality, planning, maintenance, stores, merchandising, and other departments to resolve operational problems quickly and maintain uninterrupted production.
- Professional communication requires employees to communicate politely, accurately, respectfully, and confidently while maintaining complete and timely documentation. Good communication strengthens collaboration and improves workplace relationships.
- Production huddles are short daily meetings conducted before or during production to discuss production targets, quality concerns, safety reminders, operational issues, and daily priorities. These meetings improve coordination and keep all team members informed.
- Cross-functional participation during production briefings allows departments to share updates, clarify responsibilities, discuss challenges, and coordinate corrective actions, resulting in better production planning and smoother workflow.
- The Apparel Operations Data Specialist supports effective communication by preparing production reports, updating production records, communicating operational information accurately, assisting in issue escalation, and maintaining reliable production documentation.

Demonstrate



Demonstrate a simple production huddle by assigning participants different department roles such as production, quality, planning, and maintenance. Conduct a brief meeting to discuss production targets, identify an operational issue, communicate updates, and demonstrate the correct escalation process using a sample reporting format.

Activity



1. **Name of the Activity:** Conduct a Production Huddle
2. **Objective of the Activity:** To help participants understand workplace communication, communication protocols, issue escalation, and cross-functional coordination through a structured production meeting exercise.
3. **Resources:** Department role cards, production briefing format, communication checklist, issue reporting form, marker pens, chart paper, sticky notes
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes
6. **Instructions**
 - Divide the participants into groups of 5–6 members.
 - Assign each participant a department role such as production, quality, planning, maintenance, stores, or merchandising.
 - Provide each group with a production briefing format and a communication checklist.
 - Ask the participants to conduct a short production huddle by discussing daily production targets and departmental updates.
 - Introduce a simple operational issue and ask the group to communicate the problem and decide the appropriate escalation process.

- Request each group to present how they communicated the issue and coordinated with different departments.
- Conduct a class discussion highlighting effective communication practices and proper escalation procedures.

7. Outcome: Participants understand workplace communication, communication protocols, issue escalation, professional communication practices, production huddles, and cross-functional coordination while recognising the importance of effective communication in apparel manufacturing.

Notes for Facilitation

- Encourage all participants to communicate confidently during discussions and group activities so that they develop effective workplace communication skills.
- Use simple production examples and everyday communication situations before introducing formal communication protocols and documentation practices.
- Emphasise that timely communication, proper documentation, and prompt escalation reduce operational delays, improve teamwork, and support smooth production flow.
- Reinforce the importance of production huddles and cross-functional participation in sharing updates, resolving issues, and coordinating production activities effectively.
- Highlight that the Apparel Operations Data Specialist plays an important role in maintaining production records, communicating operational information accurately, supporting issue resolution, and ensuring smooth coordination between departments.

Unit 5.2: Cross-Department Collaboration and Reporting

Unit Objectives

By the end of this unit, the participants will be able to:

1. Facilitate cross-department collaboration to ensure smooth production workflow.
2. Monitor team performance and communicate strategies to achieve production goals.
3. Evaluate meeting outcomes and collaborative efforts to identify performance gaps.
4. Prepare structured reports, dashboards, and action plans for production monitoring.
5. Recommend improvements to strengthen coordination, reporting, and cross-functional collaboration.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, departmental organisation chart, communication flowchart, sample production reports, production dashboard screenshots, team performance report formats, shift production tracking sheet, daily review template, weekly meeting agenda, reporting formats, issue escalation register, documentation checklist, communication checklist, department role cards, sample operational issue reports, visual performance charts, internet connection, speaker, attendance register

Do

- Introduce the importance of collaboration among different departments and explain how coordination influences production efficiency and quality.
- Demonstrate how production reports, dashboards, and communication practices help departments share information accurately and make timely decisions.
- Explain the process of reviewing team performance, identifying performance gaps, and conducting daily and weekly production meetings.
- Encourage participants to understand the importance of two-way communication, reporting operational issues, and documenting production information correctly.
- Reinforce the responsibilities of an Apparel Operations Data Specialist in supporting communication, coordination, reporting, and performance monitoring across departments.

Say

- Welcome everyone! I am excited to conduct today's session where we will learn how different departments work together through effective communication and reporting to achieve smooth apparel production.
- In this session, I will help you understand cross-department coordination, team performance communication, production reports, dashboards, and methods for improving reporting practices.
- By learning these concepts, you will understand how effective collaboration and accurate reporting improve teamwork, reduce production delays, and support better operational decisions.

Ask

- When working on a group activity, why is it important for every member to share updates with the team?
- If one team does not receive the correct information on time, how can it affect the overall work?
- Have you ever participated in a meeting where everyone discussed progress and future work? Why was that meeting useful?

Explain

- Explain the importance of cross-department coordination and identify the major departments involved in apparel production.
- Describe team performance communication, key production performance metrics, communication strategies, and methods for tracking shift production goals.
- Explain the benefits of effective team communication, indicators of good teamwork, and methods for assessing communication effectiveness.
- Discuss methods for identifying performance gaps through production reviews and performance monitoring.
- Explain the objectives and process of conducting daily performance reviews and weekly alignment meetings.
- Describe common production reports, production dashboards, and their importance in monitoring operational performance.
- Explain standard documentation practices and the correct methods for reporting operational issues.
- Discuss the importance of two-way communication in promoting collaboration and continuous operational improvement.
- Explain how production huddles and meetings help capture employee concerns and improve departmental coordination.
- Highlight the role of an Apparel Operations Data Specialist in preparing reports, maintaining documentation, monitoring performance, and supporting cross-functional communication.

Elaborate

- Cross-department coordination involves continuous communication and cooperation among production, quality, planning, maintenance, stores, merchandising, and other departments to ensure production activities progress smoothly without delays or misunderstandings.
- Effective team performance communication involves sharing production targets, progress updates, operational issues, and performance results using appropriate communication methods that keep all team members informed and aligned with organisational objectives.
- Key team performance metrics such as production output, efficiency, quality, attendance, and target achievement help departments evaluate operational performance and identify areas requiring improvement. Tracking shift production goals supports better production planning and resource utilisation.
- Good communication strategies encourage timely information sharing, active listening, clear instructions, regular feedback, and collaborative problem-solving. Effective teamwork improves productivity, reduces errors, and strengthens coordination across departments.

- Performance reviews help supervisors identify performance gaps by comparing actual production results with planned targets. Daily reviews and weekly alignment meetings allow departments to discuss progress, address challenges, and plan corrective actions.
- Production reports and dashboards present operational information in an organised format, allowing managers and supervisors to monitor production status, identify underperforming areas, and make informed operational decisions using real-time data.
- Proper documentation practices ensure production information is recorded accurately and consistently. Timely reporting of operational issues enables departments to respond quickly and minimise production disruptions.
- Two-way communication encourages employees to share suggestions, raise concerns, and provide feedback during meetings and production huddles. This creates a collaborative work environment that supports continuous improvement.
- Capturing team concerns during production huddles helps management understand operational challenges, improve decision-making, and strengthen employee participation in production improvement initiatives.
- The Apparel Operations Data Specialist supports cross-department collaboration by maintaining production records, preparing reports and dashboards, communicating production updates, tracking team performance, and ensuring accurate documentation for operational decision-making.

Demonstrate

Demonstrate how a daily production report and dashboard are reviewed during a team meeting. Show participants how production performance is discussed, performance gaps are identified, operational issues are reported, and departmental coordination is planned using standard reporting formats.

Activity

1. **Name of the Activity:** Department Coordination Meeting
2. **Objective of the Activity:** To help participants understand cross-department coordination, team performance communication, production reporting, and collaborative decision-making through a structured departmental meeting exercise.
3. **Resources:** Department role cards, production report formats, dashboard printouts, shift production tracking sheets, communication checklist, marker pens, chart paper, sticky notes
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes
6. **Instructions**
 - Divide the participants into groups of 5–6 members.
 - Assign each participant a department role such as production, planning, quality, maintenance, stores, or merchandising.
 - Provide each group with a sample production report and dashboard.
 - Ask the participants to review the production information and identify one performance gap and one operational issue.
 - Instruct each group to conduct a short coordination meeting and discuss possible solutions through effective communication.

- Ask the groups to record their observations and present how coordination and reporting helped resolve the identified issues.
 - Conclude the activity by discussing the importance of teamwork, reporting, and continuous communication across departments.
7. **Outcome:** Participants understand how cross-department collaboration, production reporting, communication strategies, performance reviews, and two-way communication improve operational efficiency and teamwork in apparel manufacturing.

Notes for Facilitation

- Encourage active participation from every trainee and ensure each participant contributes during group discussions and coordination meetings.
- Use simple workplace examples to explain communication, reporting, and collaboration concepts before introducing production-specific practices.
- Emphasise that accurate reporting, proper documentation, and timely communication help departments make informed decisions and reduce operational delays.
- Reinforce the importance of regular performance reviews, production dashboards, and two-way communication in improving production efficiency and teamwork.
- Highlight that the Apparel Operations Data Specialist plays a vital role in collecting production data, preparing reports, maintaining documentation, supporting departmental coordination, and providing reliable information for operational planning and continuous improvement.

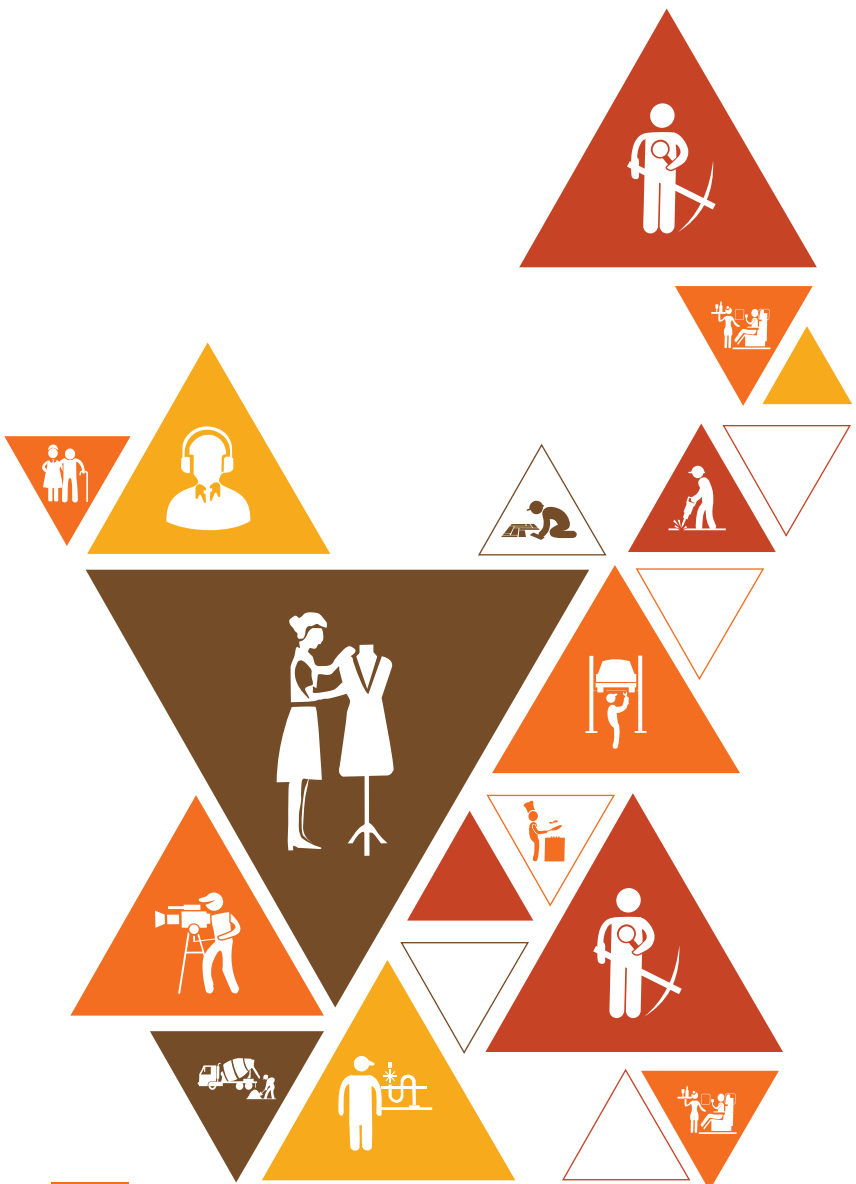
Answers to Exercises for PHB

Multiple Choice Questions:

1. a. To improve coordination and production efficiency
2. c. Quality Assurance (QA)
3. b. When the issue cannot be resolved at the operational level
4. d. To discuss production targets, resources, and operational issues
5. b. Line efficiency and production output

Descriptive Questions:

1. Refer Unit 5.1: Communication in Apparel Production
Topic: 5.1.1 Importance of Workplace Communication
Topic: 5.1.5 Professional Communication Practices
2. Refer Unit 5.1: Communication in Apparel Production
Topic: 5.1.2 Communication Protocols and Documentation
Topic: 5.1.5 Professional Communication Practices
3. Refer Unit 5.1: Communication in Apparel Production
Topic: 5.1.4 Escalation and Issue Resolution
Topic: 5.1.3 Communication Gaps and Operational Delays
4. Refer Unit 5.1: Communication in Apparel Production
Topic: 5.1.6 Production Huddles and Daily Briefings
5. Refer Unit 5.2: Cross-Department Collaboration and Reporting
Topic: 5.2.1 Cross-Department Coordination
Topic: 5.2.2 Team Performance Communication
6. Refer Unit 5.2: Cross-Department Collaboration and Reporting
Topic: 5.2.4 Production Reports and Dashboards
Topic: 5.2.5 Coordination and Reporting Improvement
Topic: 5.2.2 Team Performance Communication





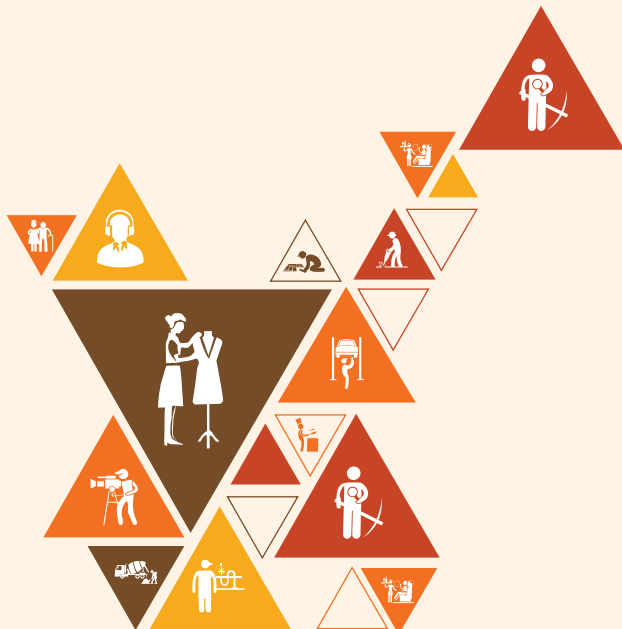
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6. Ensure Safety and Compliance Standards on Production Floor

Unit 6.1 - Workplace Safety and Compliance

Unit 6.2 - Safety Implementation and Continuous Improvement



AMH/N2110

Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Explain workplace safety regulations and compliance standards in apparel manufacturing.
2. Describe safety inspection procedures, standard operating procedures, and compliance documentation.
3. Analyse workplace hazards, risks, and unsafe practices using risk assessment methods.
4. Evaluate preventive safety measures and compliance procedures to maintain a safe work environment.
5. Apply workplace safety protocols and personal protective equipment in daily operations.
6. Conduct safety inspections, internal audits, and risk assessments using standardised checklists.
7. Implement corrective and preventive actions based on audit findings, hazard analysis, and employee feedback.
8. Conduct safety training sessions, meetings, and awareness programmes to promote workplace safety.
9. Prepare and maintain safety reports, checklists, and compliance records.
10. Evaluate the effectiveness of safety initiatives and recommend improvements to ensure continuous compliance.

Unit 6.1: Workplace Safety and Compliance

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain workplace safety regulations and compliance standards in apparel manufacturing.
2. Describe safety inspection procedures, standard operating procedures, and compliance documentation.
3. Analyse workplace hazards, risks, and unsafe practices using risk assessment methods.
4. Evaluate preventive safety measures and compliance procedures to maintain a safe work environment.
5. Apply workplace safety protocols and personal protective equipment in daily operations.
6. Conduct safety inspections, internal audits, and risk assessments using standardised checklists.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, workplace safety posters, safety regulation handbook, compliance standards manual, sample Standard Operating Procedures (SOPs), safety inspection checklist, compliance documentation formats, hazard identification chart, risk assessment template, root cause analysis worksheet, PPE samples, safety signs, emergency evacuation map, internal safety audit checklist, audit report format, sample incident report, safety observation sheet, visual hazard photographs, internet connection, speaker, attendance register

Do

- Introduce workplace safety by connecting safety practices from daily life with safety requirements followed in apparel manufacturing units.
- Explain workplace safety regulations, compliance standards, and employee responsibilities using visual examples and standard safety documents.
- Demonstrate how safety inspections, hazard identification, risk assessment, and safety audits are conducted using sample checklists and inspection formats.
- Show different types of PPE used in apparel manufacturing and explain their correct usage during various production activities.
- Reinforce the importance of following SOPs, documenting safety observations, and maintaining compliance to create a safe and productive workplace.

Say

- Welcome everyone! I am delighted to begin today's session where we will learn how workplace safety and compliance help protect employees and improve production efficiency in apparel manufacturing.
- In this session, I will help you understand safety regulations, hazard identification, safety inspections, PPE, risk assessment, safety audits, and compliance documentation.
- By learning these concepts, you will understand how following workplace safety procedures prevents accidents, ensures compliance, and creates a safe working environment for everyone.

Ask

- Before crossing a busy road, what safety precautions do you normally follow?
- Why do construction workers, factory workers, or bike riders wear protective equipment while working or travelling?
- If you notice a broken wire or water spilled on the floor at your workplace, what should you do first?

Explain

- Explain workplace safety regulations, compliance standards in the apparel industry, their application during daily operations, and employee responsibilities.
- Describe safety inspection procedures, inspection steps, Standard Operating Procedures (SOPs), safety checklists, compliance documentation, and departmental safety inspections.
- Explain hazard identification, risk assessment, the steps involved in risk assessment, and root cause analysis of workplace hazards.
- Discuss common preventive safety measures, compliance procedures, and methods used to evaluate the effectiveness of preventive measures.
- Explain safety protocols, the importance of following safety procedures, and the role of employees in maintaining workplace safety.
- Describe Personal Protective Equipment (PPE), common PPE used in apparel manufacturing, and proper PPE usage during daily operations.
- Explain the purpose of safety audits, internal safety audit processes, inspection checklists, and documentation of audit findings.
- Discuss the importance of reporting unsafe conditions, maintaining safety records, and ensuring continuous compliance with workplace safety requirements.
- Explain how safety inspections and audits help identify hazards, reduce workplace risks, and improve operational safety.
- Highlight the role of an Apparel Operations Data Specialist in maintaining safety records, supporting compliance documentation, participating in safety inspections, and promoting workplace safety awareness.

Elaborate

- Workplace safety regulations establish guidelines that protect employees from workplace accidents and health hazards while ensuring safe working conditions throughout apparel manufacturing operations. Compliance with these regulations improves employee well-being and organisational performance.
- Compliance standards define the procedures and requirements that apparel manufacturing units must follow to maintain legal compliance, operational safety, product quality, and workplace discipline. Employees play an important role in following these standards during daily work activities.
- Safety inspections involve systematic examination of workplaces, machinery, equipment, and work practices to identify unsafe conditions before accidents occur. Standard Operating Procedures, safety checklists, and compliance documentation help maintain consistency during inspections.
- Hazard identification involves recognising conditions or activities that may cause injury or damage, while risk assessment evaluates the likelihood and severity of identified hazards. Root cause analysis helps determine why hazards exist and how they can be eliminated permanently.

- Preventive safety measures include safe work practices, proper housekeeping, equipment maintenance, employee training, machine guarding, emergency preparedness, and continuous monitoring of workplace conditions to minimise occupational risks.
- Safety protocols provide step-by-step instructions for performing work safely. Following these protocols consistently ensures employees protect themselves, their colleagues, machinery, and production materials during daily operations.
- Personal Protective Equipment such as safety shoes, gloves, masks, ear protection, aprons, and eye protection provides an additional layer of safety against workplace hazards. Appropriate PPE selection depends on the specific production task being performed.
- Safety audits are systematic evaluations conducted to verify compliance with safety regulations, identify deficiencies, and recommend corrective actions. Proper documentation of audit findings supports continuous monitoring and improvement of workplace safety performance.
- Regular safety inspections, audit findings, and compliance documentation provide valuable information that helps organisations reduce accidents, improve workplace discipline, and strengthen their overall safety management system.
- The Apparel Operations Data Specialist contributes to workplace safety by maintaining inspection records, supporting compliance documentation, analysing safety-related data, preparing reports, and assisting management in monitoring workplace safety performance.

Demonstrate

Demonstrate a simple workplace safety inspection by using a sample safety checklist. Show participants how to identify visible hazards, verify PPE usage, complete an inspection checklist, and record basic safety observations using a standard compliance documentation format.

Activity

- 1. Name of the Activity:** Safety Inspection Checklist Exercise
- 2. Objective of the Activity:** To help participants understand workplace safety regulations, hazard identification, PPE usage, safety inspections, and compliance documentation through a practical inspection activity.
- 3. Resources:** Safety inspection checklist, PPE samples, workplace hazard photographs, hazard identification worksheet, marker pens, chart paper, sticky notes
- 4. Type of Activity:** Group Activity
- 5. Time Duration:** 30 Minutes
- 6. Instructions**
 - Divide the participants into groups of 4–5 members.
 - Provide each group with a sample safety inspection checklist and workplace hazard photographs.
 - Ask the participants to identify visible hazards shown in the photographs and record them in the checklist.
 - Instruct each group to recommend appropriate preventive measures and identify the PPE required for each hazard.
 - Ask the participants to complete the inspection checklist and prepare a brief compliance observation report.

- Invite each group to present their observations, preventive measures, and PPE recommendations.
- Summarise the activity by discussing the importance of regular safety inspections and compliance documentation.

7. Outcome: Participants understand workplace safety regulations, hazard identification, risk assessment, PPE usage, safety inspections, compliance documentation, and the importance of maintaining safe working conditions in apparel manufacturing.

Notes for Facilitation

- Encourage active participation from every trainee and provide equal opportunities for all participants to identify hazards and suggest preventive measures.
- Use simple workplace examples and visual aids to explain safety concepts before introducing formal safety regulations and compliance procedures.
- Emphasise that following SOPs, wearing appropriate PPE, conducting regular inspections, and maintaining accurate documentation are essential for preventing workplace accidents.
- Reinforce the importance of hazard identification, risk assessment, safety audits, and continuous compliance in maintaining a safe and efficient production environment.
- Highlight that the Apparel Operations Data Specialist supports workplace safety by maintaining safety records, assisting with inspections, preparing compliance documentation, monitoring safety observations, and contributing to continuous improvement of safety performance.

Unit 6.2: Safety Implementation and Continuous Improvement

Unit Objectives

By the end of this unit, the participants will be able to:

1. Implement corrective and preventive actions based on audit findings and hazard analysis.
2. Conduct safety training sessions, meetings, and awareness programmes to promote workplace safety.
3. Prepare and maintain safety reports, checklists, and compliance records.
4. Evaluate the effectiveness of safety initiatives using audits, surveys, and compliance observations.
5. Recommend improvements to strengthen workplace safety and regulatory compliance.
6. Promote employee participation and cross-functional collaboration to sustain a safe work environment.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, whiteboard markers, flip charts, chart papers, sticky notes, notepads, pens, corrective and preventive action (CAPA) format, safety improvement plan template, safety training presentation, safety awareness posters, PPE samples, sample safety reports, compliance record formats, safety inspection reports, safety observation checklist, employee safety survey format, feedback form, suggestion box, safety meeting agenda, safety performance evaluation checklist, incident reporting form, cross-functional communication chart, workplace safety photographs, internet connection, speaker, attendance register

Do

- Begin the session by discussing how continuous improvement in workplace safety depends on regular monitoring, corrective actions, employee participation, and effective communication.
- Explain corrective and preventive actions, safety training, safety reporting, and safety performance evaluation using practical examples from apparel manufacturing.
- Demonstrate how safety records, employee feedback, and compliance reports are prepared and used for workplace safety improvement.
- Encourage participants to understand the importance of employee involvement, cross-functional collaboration, and safety awareness activities in maintaining a safe workplace.
- Reinforce the responsibilities of an Apparel Operations Data Specialist in maintaining safety documentation, analysing safety information, and supporting continuous safety improvement.

Say

- Welcome everyone! I am excited to begin today's session where we will learn how organisations continuously improve workplace safety through teamwork, training, reporting, and employee participation.
- In this session, I will help you understand corrective and preventive actions, safety training, safety reports, performance evaluation, employee feedback, and collaborative safety improvement.

- By learning these concepts, you will understand how continuous safety improvement protects employees, improves compliance, and creates a safer and more productive workplace.

Ask



- If you notice a repeated safety problem at your workplace, what do you think should be done after reporting it?
- Why do organisations regularly conduct safety training even for experienced employees?
- Have you ever shared a suggestion that helped improve safety or solve a problem at school, home, or work?

Explain



- Explain corrective and preventive actions, their sources, methods of implementing preventive safety measures, corrective actions, and the role of the Apparel Operations Data Specialist.
- Describe safety training programmes, common safety training topics, methods of conducting training sessions, and safety awareness activities.
- Explain common safety reports, compliance records, their purpose, and the role of an Apparel Operations Data Specialist in maintaining safety documentation.
- Discuss the importance of safety performance evaluation and explain different methods such as compliance observations and employee safety surveys.
- Explain the importance of employee feedback in improving workplace safety and describe methods of collecting and using safety feedback effectively.
- Discuss feedback mechanisms that encourage employees to report hazards, suggest improvements, and participate in safety initiatives.
- Explain employee participation, cross-functional collaboration, safety meetings, and awareness activities that strengthen workplace safety culture.
- Describe how continuous monitoring, reporting, and teamwork contribute to long-term safety improvement in apparel manufacturing.
- Explain the importance of maintaining accurate safety records and reviewing safety performance regularly for regulatory compliance.
- Highlight the role of an Apparel Operations Data Specialist in analysing safety data, maintaining records, supporting audits, preparing reports, and promoting continuous safety improvement.

Elaborate



- Corrective and preventive actions are systematic measures taken to eliminate existing workplace hazards and prevent similar incidents from occurring in the future. Implementing these actions strengthens workplace safety and reduces operational risks.
- Safety improvement begins by identifying hazards through inspections, incident reports, audits, employee observations, and compliance reviews. Appropriate preventive measures and corrective actions are then planned, implemented, monitored, and reviewed for effectiveness.

- Safety training programmes educate employees on workplace hazards, emergency procedures, PPE usage, safe work practices, and organisational safety policies. Regular training ensures employees remain aware of changing workplace risks and compliance requirements.
- Safety awareness activities such as demonstrations, poster campaigns, toolbox talks, quizzes, and safety meetings encourage employees to actively participate in creating a safe working environment while reinforcing important safety messages.
- Safety reports and compliance records document inspections, incidents, corrective actions, audit findings, training attendance, and compliance status. Proper documentation supports regulatory compliance, management review, and continuous improvement initiatives.
- Safety performance evaluation measures how effectively workplace safety programmes are implemented using compliance observations, inspection findings, employee safety surveys, incident analysis, and audit results. Regular evaluation helps organisations identify improvement opportunities.
- Employee feedback provides valuable information about workplace hazards, operational concerns, and practical safety improvements. Effective feedback mechanisms encourage employees to participate actively in identifying risks and recommending preventive measures.
- Cross-functional collaboration allows production, quality, maintenance, human resources, administration, and safety teams to work together on implementing safety improvements. Safety meetings strengthen communication and ensure collective responsibility for workplace safety.
- Continuous safety improvement depends on regular monitoring, timely corrective actions, employee participation, effective communication, and periodic review of safety performance to maintain a proactive safety culture throughout the organisation.
- The Apparel Operations Data Specialist contributes by maintaining accurate safety records, preparing compliance reports, analysing safety data, supporting audits, monitoring corrective actions, and assisting management in making informed decisions related to workplace safety.

Demonstrate

Demonstrate how to prepare a simple corrective action record using a sample workplace safety observation. Show participants how to record the identified hazard, recommend preventive measures, document corrective actions, and complete a basic safety compliance report.

Activity

1. **Name of the Activity:** Safety Improvement Planning Exercise
2. **Objective of the Activity:** To help participants understand corrective actions, safety reporting, employee feedback, and continuous workplace safety improvement through a structured planning activity.
3. **Resources:** Sample safety observation sheets, corrective action format, employee feedback forms, compliance record template, chart paper, marker pens, sticky notes
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes
6. **Instructions**
 - Divide the participants into groups of 4–5 members.
 - Provide each group with a sample workplace safety observation sheet and employee feedback form.
 - Ask the participants to identify one workplace safety concern from the observation sheet.

- Instruct each group to suggest one corrective action and one preventive action for the identified safety concern.
 - Ask the participants to complete a simple compliance record and prepare a short safety improvement plan.
 - Invite each group to present their safety improvement plan and explain how employee participation supports workplace safety.
 - Summarise the activity by discussing the importance of continuous safety improvement through reporting, collaboration, and employee involvement.
- 7. Outcome:** Participants understand the implementation of corrective and preventive actions, safety reporting, employee feedback systems, safety performance evaluation, cross-functional collaboration, and continuous workplace safety improvement in apparel manufacturing.

Notes for Facilitation

- Encourage every participant to contribute ideas during discussions and reinforce that workplace safety is the shared responsibility of all employees.
- Use practical workplace examples to explain safety improvement concepts before introducing formal reporting procedures and documentation practices.
- Emphasise that corrective actions, preventive measures, safety training, and accurate documentation work together to reduce workplace hazards and improve compliance.
- Reinforce the importance of employee feedback, safety meetings, and cross-functional collaboration in building a strong and sustainable workplace safety culture.
- Highlight that the Apparel Operations Data Specialist plays an important role in maintaining safety records, preparing compliance reports, monitoring corrective actions, analysing safety performance, and supporting continuous improvement initiatives.

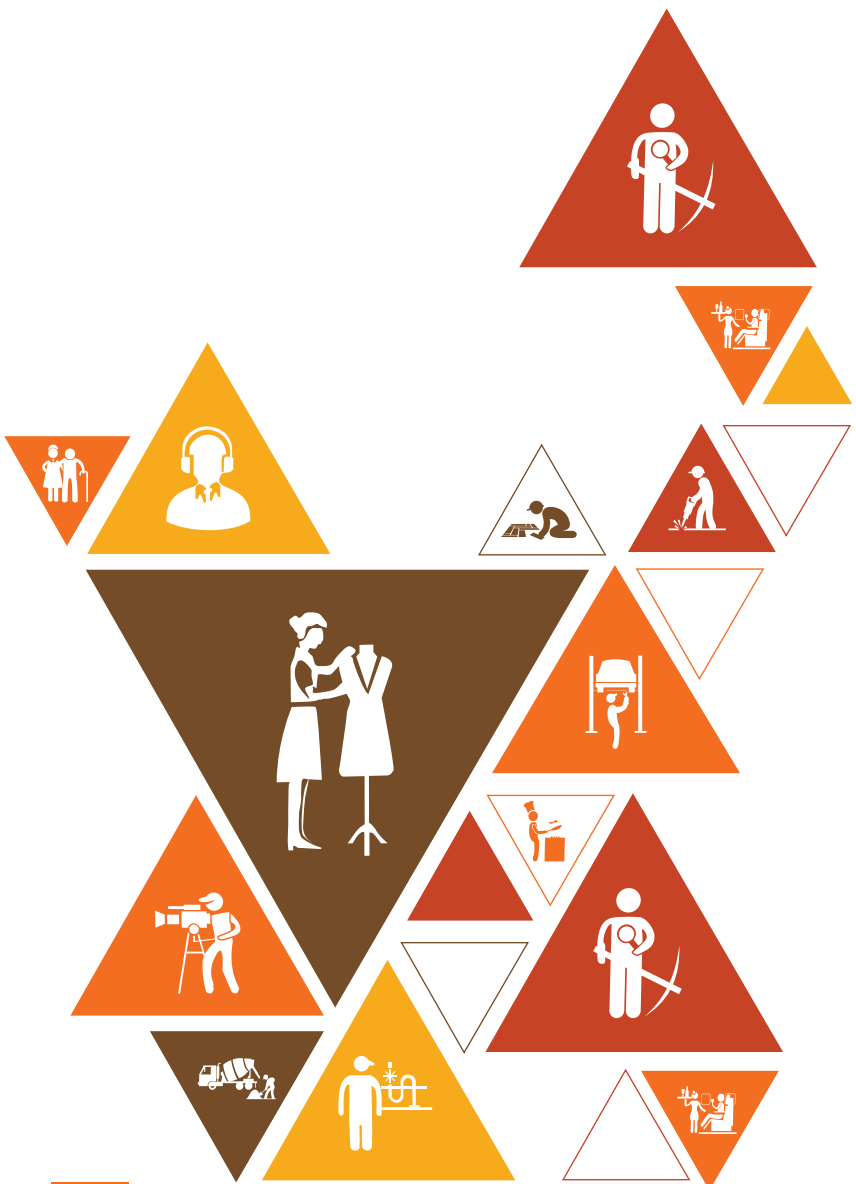
Answers to Exercises for PHB

Multiple Choice Questions:

1. b. To identify hazards and ensure compliance with safety standards
2. a. Safety shoes
3. c. To evaluate compliance with workplace safety procedures
4. b. Safety inspection report
5. d. Safety meetings and awareness programmes

Descriptive Questions:

1. Refer Unit 6.1: Workplace Safety and Compliance
Topic: 6.1.1 Workplace Safety Regulations and Compliance Standards
2. Refer Unit 6.1: Workplace Safety and Compliance
Topic: 6.1.2 Safety Inspections and Compliance Documentation
Topic: 6.1.3 Hazard Identification and Risk Assessment
Topic: 6.1.6 Safety Audits and Inspection Checklists
3. Refer Unit 6.2: Safety Implementation and Continuous Improvement
Topic: 6.2.1 Corrective and Preventive Actions
Topic: 6.2.2 Safety Training and Awareness
4. Refer Unit 6.2: Safety Implementation and Continuous Improvement
Topic: 6.2.3 Safety Reports and Compliance Records
Topic: 6.2.4 Evaluation of Safety Performance
5. Refer Unit 6.2: Safety Implementation and Continuous Improvement
Topic: 6.2.5 Workplace Safety Improvement
Topic: 6.2.6 Employee Participation and Safety Collaboration





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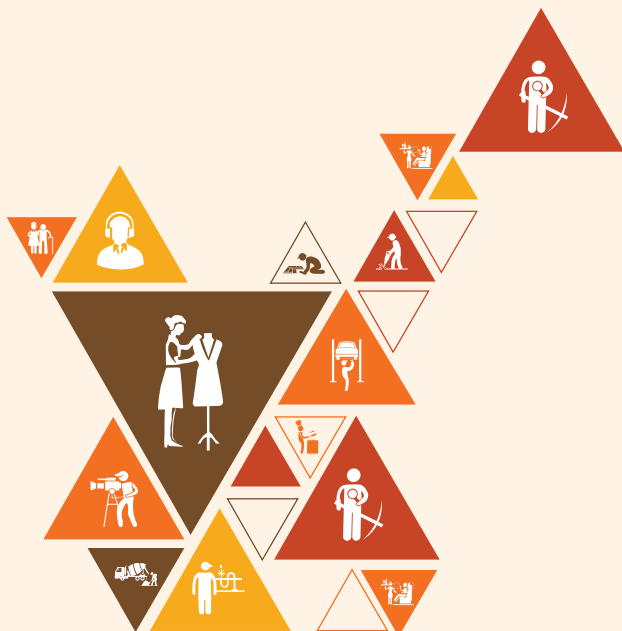


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7. Manage the Workspace, Operate tools, and Handle Machinery Efficiently

Unit 7.1 - Workspace and Resource Management



AMH/N0310

Key Learning Outcomes



By the end of this module, the participants will be able to:

1. Explain the importance of green jobs and sustainable workplace practices in the apparel industry.
2. Describe methods for optimising the use of materials and workplace resources to minimise wastage.
3. Explain inclusive workplace practices, disability etiquette, and respectful communication with persons with disabilities.
4. Describe safe working practices for handling, cleaning, and maintaining tools, equipment, and machinery.
5. Identify cleaning equipment, cleaning substances, and their appropriate applications.
6. Analyse the effects of contamination on products and workplace operations.
7. Apply safe material handling, lifting techniques, and correct working posture during operations.
8. Perform routine cleaning, maintenance, storage, and waste disposal according to workplace procedures.
9. Evaluate workplace practices to ensure safety, cleanliness, resource efficiency, and equipment readiness.

Unit 7.1: Workspace and Resource Management

Unit Objectives

By the end of this unit, the participants will be able to:

1. Explain the importance of green jobs and sustainable workplace practices in the apparel industry.
2. Describe methods for optimising the use of materials and workplace resources to minimise wastage.
3. Explain inclusive workplace practices, disability etiquette, and respectful communication with persons with disabilities.
4. Describe the effects of contamination on products and workplace operations.
5. Identify cleaning equipment, cleaning substances, and their appropriate applications.
6. Evaluate workplace practices to ensure cleanliness, resource efficiency, and environmental sustainability.

Resources to be Used

Participant's Handbook, Facilitator Guide, laptop, LCD projector, presentation slides, whiteboard, marker pens, chart papers, sticky notes, flash cards, sample PPE, waste segregation bins, reusable and recyclable material samples, cleaning equipment, cleaning agents, housekeeping schedule, workplace cleaning checklist, maintenance checklist, sample contamination control chart, workplace layout chart, accessibility posters, disability awareness posters, resource utilisation charts, sustainability posters, attendance sheet, notepad, pens

Do

- Introduce the concepts of sustainable workplace practices, resource optimisation, workplace cleanliness, and inclusivity using practical examples from apparel manufacturing units.
- Explain how proper housekeeping, contamination prevention, and efficient resource utilisation directly improve production quality, safety, and productivity.
- Encourage trainees to observe their surroundings and identify examples of waste, unsafe practices, and opportunities for improving workplace organisation.
- Demonstrate the correct use of cleaning equipment, cleaning schedules, and workplace maintenance practices while emphasising safety precautions.
- Conduct the activity by dividing participants into groups and encourage discussion on sustainable workplace practices and resource-efficient behaviour.

Say

- Good morning everyone! I hope you are excited because today we are going to learn how a clean, organised, safe, and sustainable workplace helps improve production quality and efficiency in apparel manufacturing.
- In this session, I will help you understand green practices, resource optimisation, workplace cleanliness, contamination prevention, inclusive workplace practices, and your responsibilities as an Apparel Operations Data Specialist.

- By understanding these topics, you will be able to contribute to safer workplaces, reduce wastage, support sustainable production, and maintain high-quality standards in your future workplace.

Ask

- Have you ever carried a heavy school bag or household item? How did you lift it safely?
- What do you usually do after using a tool or household cleaning equipment?
- Why do you think damaged equipment or tools should be reported immediately instead of continuing to use them?

Explain

- Explain the importance of using tools and equipment safely to prevent injuries and improve workplace efficiency.
- Describe common tools and equipment used in apparel manufacturing and their correct handling methods.
- Explain safe material handling techniques, including lifting, carrying, and transporting materials.
- Discuss proper ergonomic practices such as correct posture, body movement, and workstation arrangement.
- Explain cleaning methods, routine equipment maintenance, and the importance of following maintenance schedules.
- Describe the limits of responsibility of an Apparel Operations Data Specialist regarding equipment handling and maintenance reporting.
- Explain safe waste disposal methods and proper storage of cleaning equipment and materials.
- Discuss equipment care practices that maintain operational readiness and reduce machine downtime.
- Explain daily equipment inspection procedures and the importance of reporting faults immediately.
- Highlight the importance of workplace safety compliance and continuous monitoring during routine operations.

Elaborate

- Apparel manufacturing uses various hand tools, measuring devices, cutting tools, material handling equipment, and cleaning equipment. Employees must understand the correct method of using each tool to avoid accidents and maintain product quality.
- Safe handling practices include checking equipment before use, using PPE where required, following operating instructions, handling sharp tools carefully, and reporting damaged equipment immediately to supervisors.
- Material handling involves lifting, carrying, stacking, and transporting materials safely. Proper techniques reduce physical strain, prevent injuries, and protect materials from damage during production activities.
- Good ergonomic practices include maintaining correct sitting and standing posture, adjusting workstations properly, avoiding repetitive strain, and using safe lifting techniques to improve comfort and productivity.

- Cleaning equipment should always be used according to workplace procedures. Routine cleaning removes dust and contaminants, while scheduled maintenance helps improve equipment performance and extends service life.
- Apparel Operations Data Specialists are responsible for reporting equipment abnormalities, maintaining maintenance records, following workplace procedures, and informing maintenance teams whenever equipment requires servicing beyond their responsibility.
- Workplace waste such as fabric scraps, packaging materials, damaged accessories, and cleaning waste should be segregated and disposed of according to organisational procedures to maintain cleanliness and environmental compliance.
- Cleaning equipment and maintenance materials should be stored safely in designated locations after use. Proper storage prevents equipment damage, reduces workplace hazards, and ensures easy availability when required.
- Equipment care includes daily visual inspections, checking for loose parts, verifying cleanliness, and ensuring equipment is ready for operation before production begins. Regular inspections minimise unexpected production interruptions.
- Workplace safety compliance requires employees to consistently follow SOPs, use PPE correctly, maintain housekeeping standards, participate in inspections, and immediately report unsafe conditions to maintain a safe production environment.

Demonstrate

Demonstrate the correct method of inspecting a hand tool before use, lifting and carrying a fabric bundle using proper posture, cleaning the tool after use, storing it safely in the designated location, and completing a simple equipment inspection checklist.

Activity

1. **Name of the Activity:** Safe Tool Handling and Workplace Inspection
2. **Objective of the Activity:** To help participants identify safe handling practices, proper lifting methods, equipment inspection procedures, and workplace safety compliance requirements.
3. **Resources:** Sample hand tools, fabric bundles, equipment inspection checklist, PPE, cleaning cloths, waste bins, marker pens, chart paper
4. **Type of Activity:** Group Activity
5. **Time Duration:** 30 Minutes
6. **Instructions**
 - Divide participants into small groups of four to five members.
 - Provide each group with sample tools, fabric bundles, and an equipment inspection checklist.
 - Ask participants to inspect the tools for visible defects and identify any unsafe conditions.
 - Instruct each participant to demonstrate the correct lifting technique and safe handling of the provided materials.
 - Ask each group to identify proper storage locations, waste disposal methods, and equipment care practices.
 - Invite each group to present their observations and discuss how these practices improve workplace safety and operational efficiency.

7. **Outcome:** Participants will be able to demonstrate safe handling of tools and materials, apply ergonomic practices, identify equipment maintenance requirements, follow safe storage and waste disposal procedures, and understand the importance of workplace safety compliance.

Notes for Facilitation

- Encourage all trainees to actively participate in the practical demonstration and provide opportunities for each participant to practise safe handling techniques.
- Reinforce learning by connecting workplace safety concepts with familiar activities from daily life to improve understanding.
- Emphasise that proper ergonomics and safe material handling help prevent injuries, reduce fatigue, and improve productivity.
- Remind trainees that equipment should never be operated if defects or unsafe conditions are observed, and such issues should always be reported immediately.
- Highlight that routine cleaning, proper storage, daily inspections, and compliance with workplace procedures contribute to operational readiness, equipment longevity, and overall workplace safety.

Answers to Exercises for PHB

Multiple Choice Questions:

1. c. Optimising the use of materials and resources
2. b. Machine oil and dirt
3. c. Bend the knees and keep the back straight
4. d. In the designated waste disposal location
5. a. Providing accessible workstations and respectful communication

Descriptive Questions:

1. Refer Unit 7.1: Workspace and Resource Management
Topic: 7.1.1 Green Jobs and Sustainable Practices
Topic: 7.1.2 Resource Optimisation and Waste Reduction
2. Refer Unit 7.1: Workspace and Resource Management
Topic: 7.1.4 Product Contamination and Prevention
3. Refer Unit 7.2: Safe Handling of Tools and Equipment
Topic: 7.2.1 Safe Handling of Tools and Equipment
Topic: 7.2.2 Material Handling and Ergonomic Practices
4. Refer Unit 7.1: Workspace and Resource Management
Topic: 7.1.5 Cleaning Equipment and Cleaning Agents
Topic: 7.2.3 Cleaning and Routine Equipment Maintenance
Topic: 7.2.4 Waste Disposal and Safe Storage
Refer Unit 7.1: Workspace and Resource Management
Topic: 7.1.3 Inclusive Workplace Practices
Topic: 7.1.6 Workplace Cleanliness and Resource Efficiency
5. Refer Unit 7.2: Safe Handling of Tools and Equipment
Topic: 7.2.5 Equipment Care and Operational Readiness
Topic: 7.2.6 Safety Compliance in Workplace Operations





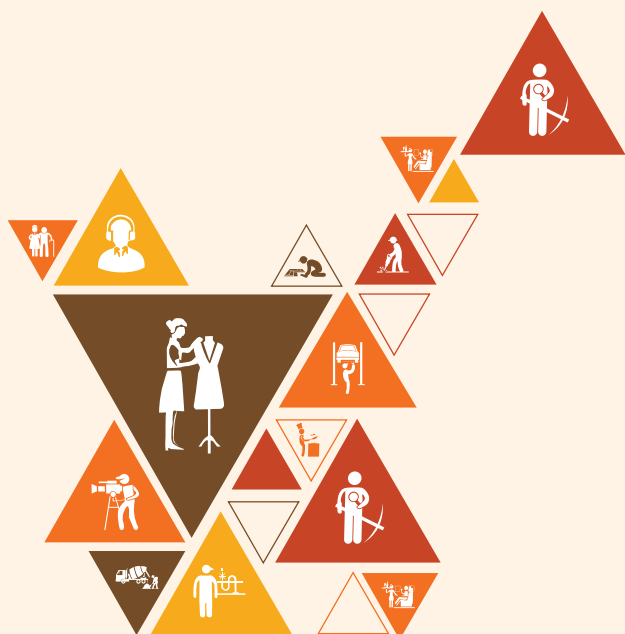
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8. Employability Skills



DGT/VSQ/N0102

Employability Skills is available at the following location

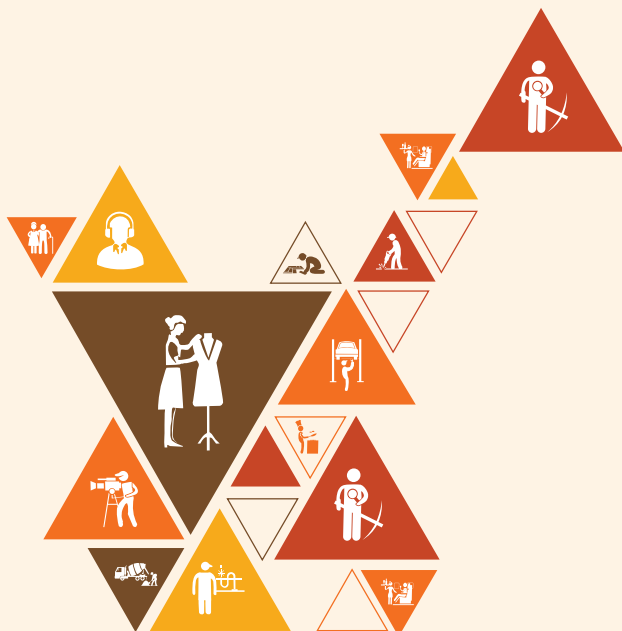


<https://www.skillindiadigital.gov.in/content/list>

Employability Skills



Annexure III: List of QR Codes Used in PHB



Annexure I

Training Delivery Plan

Training Delivery Plan			
Program Name:	Apparel Operations Data Specialist		
Qualification Pack Name & Ref. ID	Apparel Operations Data Specialist & AMH/Q2102		
Version No.	1.0	Version Update Date	13-02-2029
Pre-requisites to Training (if any)	Not Applicable		
Training Outcomes	By the end of this program, the participants will be able to: 1. Understand apparel production processes, workflow, and departmental coordination from order to dispatch. 2. Apply production planning and scheduling techniques to ensure timely and efficient operations. 3. Analyse workflow data to identify bottlenecks and recommend corrective actions. 4. Evaluate quality checkpoints and ensure adherence to buyer and industry standards. 5. Implement lean manufacturing and 5S practices to optimize floor efficiency. 6. Use digital or AI-enabled tools to monitor production progress and generate reports. 7. Coordinate effectively with sourcing, merchandising, and quality teams for smooth operations. 8. Prepare operational reports highlighting performance metrics and improvement areas. 9. Follow greening and energy conservation activities as per the guidelines		

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
1.	Introduction and Orientation to Apparel Operations Data Specialist	Introduction to Apparel Operations	- Describe the overview and significance of the Indian apparel industry. - Identify employment opportunities available for an Apparel Operations Data Specialist in the apparel industry. - Explain the apparel production process and the role of an Apparel Operations Data Specialist across different production stages.	Bridge Module	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Charts, Models, Flip Chart, White-Board/ Smart Board, Marker, Duster training kit (trainer guide, presentations)	3 Theory (3:00) Practical (0:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			- Describe the roles, responsibilities, and key competencies required for an Apparel Operations Data Specialist. - Explain the production floor processes and the contribution of an Apparel Operations Data Specialist in supporting efficient operations. - Describe the flow of production data and the importance of accurate production reporting in apparel manufacturing.				
2.	Coordinate Apparel Production and Workforce Operations	Apparel Production Process and Departmental Functions	- Describe the stages of the apparel production process and the key activities performed at each stage. - Explain the functions of different production departments and their interdependence in achieving production goals. - Illustrate the relationship between cutting, sewing, finishing, and packing operations in the production workflow.	AMH/N2106 PC1, KU1	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Charts, Models, Flip Chart, White-Board/ Smart Board, Marker, Duster-Training kit (trainer guide, presentations) Computer with peripherals and stools and computer software (eg Micro-soft office), garments, made ups and home-furnishing samples, calculators, sewing kit (measurement tape, scissors, trimmers etc.),	8 Theory (3:00) Practical (5:00)
		Manpower Estimation and Production Planning	- Explain the methods used to estimate manpower requirements based on SMV, order quantity, pitch time, and machine requirements. - Apply production plans and order requirements to estimate manpower needs for different production departments.	AMH/N2106 PC2, KU2			8 Theory (3:00) Practical (5:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			Assess manpower requirements to support efficient production planning and execution.			industrial single needle lockstitch machine	
		Workforce Deployment and Cross-Functional Coordination	- Explain the principles of workforce deployment, shift scheduling, and manpower balancing across production lines. - Apply daily manpower deployment plans and communicate them effectively with supervisors and relevant departments. - Analyse workforce availability by coordinating with HR, Industrial Engineering, and production teams to ensure timely task allocation.	AMH/N2106 PC3, PC4, KU3, KU4		with needle guard with stools, pouches / baskets for storing items and cleaning cloth, machine tool-kit, basic stationery, white/black board+ marker+ duster/ chalk, students notes, stopwatches, photocopier, films – work study, rating, sewing operations – methods and time study quantity may vary as per requirement, playing cards (quantity may vary as per requirement), a4 graph book (quantity may vary as per requirement), 1 big table and stools for labs,	8 Theory (3:00) Practical (5:00)
		Attendance Monitoring and Workforce Performance Analysis	- Explain the use of attendance monitoring systems and productivity data collection methods in apparel manufacturing. - Analyse attendance, absenteeism, and workforce performance trends using production records. - Evaluate workforce performance using efficiency, WIP status, absenteeism rate, skill utilisation, and line output indicators.	AMH/N2106 PC5, KU5, KU6			7 Theory (3:00) Practical (4:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Manpower Allocation and Workforce Gap Analysis	- Evaluate the impact of manpower allocation on production efficiency and overall output. - Analyse workforce shortages, overstaffing, and skill mismatches using production and manpower data. - Recommend suitable manpower adjustments to improve operational efficiency and line performance.	AMH/N2106 PC6, PC7, KU7		fire extinguisher and first aid and dustbin, student's chair with table arm, teacher's table and chair, sewing needle, bobbin, bobbin case, tailor's chalk, types of pins like safety pin etc., sewing thread(-surplus), trims and accessories (variety, the quantity may vary), fabric (surplus, qnt and variety may vary), Projector / LCD Unique Equipment Required: Computer with peripherals and stools and computer software (e.g. Microsoft office), garments, made ups and home furnishing samples, calculators, sewing kit (measurement tape,	8 Theory (4:00) Practical (3:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Production Meetings and Re-source Alignment	- Explain the purpose and structure of production meetings and standard reporting formats. - Apply effective communication and reporting practices during production meetings. - Evaluate manpower resource allocation to align line performance with production targets.	AMH/N2106 PC8, KU8		scissors, trimmers etc.), industrial single needle lockstitch machine with needle guard with stools, pouches / baskets for storing items and cleaning cloth, machine tool-kit, basic stationary, white/black board+ marker+ duster/ chalk, students notes, stopwatches, photocopier, films – work study, rating, sewing operations – methods and time study quantity may vary as per requirement, playing cards (quantity may vary as per requirement), a4 graph book (quantity may vary as per requirement),	8 Theory (4:00) Practical (3:00)
		Skill Matrix and Training Planning	- Explain the concept of skill matrices, skill grading levels, and training requirements in apparel manufacturing. - Analyse workforce capability gaps using skill matrix data. - Evaluate appropriate training plans and on-the-job learning interventions to improve workforce competency.	AMH/N2106 PC9, KU9			8 Theory (4:00) Practical (3:00)
		Workplace Regulations and Ethical Workforce Practices	- Explain workplace regulations related to labour utilisation, shift work, safety requirements, and ethical workforce practices. - Interpret organisational policies and regulatory requirements applicable to manpower management. - Apply workplace regulations and ethical practices while supporting workforce planning and production operations.	AMH/N2106 KU10			5 Theory (3:00) Practical (2:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
						1 big table and stools for labs, fire extinguisher and first aid and dustbin, student's chair with table arm, teacher's table and chair, sewing needle, bobbin, bobbin case, tailor's chalk, types of pins like safety pin etc., sewing thread(-surplus), trims and accessories (variety, the quantity may vary), fabric (surplus, qnt and variety may vary), Projector/ LCD	
3.	Design Efficient Line Layouts and Manage WIP Flow	Production Order Analysis and Workflow Planning	- Analyse production orders, style specifications, and workflow requirements to plan an appropriate production line layout. - Explain the concepts of workflow, operation flow, and Work-in-Progress (WIP) management in apparel manufacturing. - Interpret Bills of Materials (BOM), purchase orders, and requisition documents for production planning.	AMH/N2107 PC1, KU1, KU7	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Charts, Models, Flip Chart, White-Board/ Smart Board, Marker, Duster Computer with peripherals and stools and computer software (e.g. Micro-soft office), garments, made ups and	8 Theory (2:00) Practical (6:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Line Layout Design and Machine Selection	- Explain the principles of line layout design and workstation material movement. - Apply line layout planning by considering operator skill levels, operation sequence, and machine types. - Differentiate between common machine types and their functions in apparel production.	AMH/N2107 PC2, KU4, KU6		home furnishing samples, calculators, sewing kit (measurement tape, scissors, trimmers etc.), industrial single needle lockstitch machine with needle guard with stools, pouches / baskets for storing items and cleaning cloth, machine tool-kit, basic stationery, white/black board+ marker+ duster/ chalk, students notes, stopwatches, photocopier, films – work study, rating, sewing operations – methods and time study quantity may vary as per requirement, playing cards (quantity may vary)	8 Theory (4:00) Practical (4:00)
		Line Layout Evaluation and Performance Assessment	- Evaluate the efficiency of production line layouts using time-and-motion studies. - Assess layout performance through mock production runs to identify opportunities for improvement. - Recommend suitable layout modifications to improve production efficiency and workflow.	AMH/N2107 PC3			8 Theory (4:00) Practical (4:00)
		WIP Monitoring and Material Flow Management	- Explain the importance of WIP monitoring in maintaining continuous production flow. - Apply methods for tracking WIP movement and recording real-time production status. - Explain material requisition procedures, inventory processes, and consumption norms for fabrics, trims, and accessories.	AMH/N2107 PC4, KU2, KU3			8 Theory (4:00) Practical (4:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Bottleneck Identification and Corrective Actions	- Analyse WIP imbalances and production bottlenecks using workflow data. - Evaluate the root causes of production delays affecting workflow efficiency. - Apply suitable corrective actions such as operator reassignment and buffer balancing to restore smooth WIP flow.	AMH/N2107 PC5, PC6		as per requirement), a4 graph book (quantity may vary as per requirement), 1 big table and stools for labs, fire extinguisher and first aid and dustbin, student's chair with table arm,	7 Theory (4:00) Practical (3:00)
		Cross-Functional Coordination for Layout and WIP Management	- Explain the importance of coordination between production, Industrial Engineering, quality, and stores departments. - Apply layout implementation and WIP management plans through effective cross-functional collaboration. - Explain store processes, Goods Receipt Note (GRN) methods, and stock issuance procedures that support production operations.	AMH/N2107 PC7, KU8		teacher's table and chair, sewing needle, bobbin, bobbin case, tailor's chalk, types of pins like safety pin etc., sewing thread(-surplus), trims and accessories (variety, the quantity may vary), fabric (surplus, qnt and variety may vary), Projector / LCD Unique Equipment Required: Computer with peripherals and stools and computer software	7 Theory (4:00) Practical (3:00)
		Line Performance Improvement and Continuous Optimisation	- Evaluate production line performance after layout implementation using operational data. - Recommend improvements in line layout and WIP management based on performance evaluation. - Apply basic digital inventory tracking tools and reporting formats to support production monitoring and decision-making.	AMH/N2107 PC8, KU10			7 Theory (4:00) Practical (3:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Safety and Equipment Management in Production Operations	• Explain preventive maintenance requirements and methods for handling machine downtime. • Describe workplace safety norms related to material handling and equipment usage. • Apply safe work practices while supporting line layout, material movement, and production operations.	AMH/N2107 KU5, KU9		(e.g. Micro-soft office), garments, made ups and home furnishing samples, calculators, sewing kit (measurement tape, scissors, trimmers etc.), industrial single needle lockstitch machine with needle guard with stools, pouches / baskets for storing items and cleaning cloth, machine toolkit, basic stationary, white/black board +marker+ duster/ chalk, students notes, stopwatches, photocopier, films – work study, rating, sewing operations – methods and time study quantity may vary	7 Theory (4:00) Practical (3:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
						as per requirement, playing cards (quantity may vary as per requirement), a4 graph book (quantity may vary as per requirement), 1 big table and stools for labs, fire extinguisher and first aid and dustbin, student's chair with table arm, teacher's table and chair, sewing needle, bobbin, bobbin case, tailor's chalk, types of pins like safety pin etc., sewing thread(-surplus), trims and accessories (variety, the quantity may vary), fabric (surplus, qnt and variety may vary), Projector/ LCD	

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
4.	Evaluate Production Performance and Implement Root Cause Solutions	Production Performance Indicators and KPIs	- Explain the importance of production Key Performance Indicators (KPIs) such as efficiency, absenteeism, downtime, defect rate, DHU, and throughput. - Monitor production performance using standard efficiency and quality metrics. - Interpret KPI values to assess overall production performance.	AMH/N2108 PC1, KU6	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Charts, Models, Flip Chart, White-Board/ Smart Board, Marker, Duster Data management and recording software, Sewing Data Analysis software. Unique Equipment Required: Computer with peripherals and stools and computer software (e.g. Microsoft office), garments, made ups and home furnishing samples, calculators, sewing kit (measurement tape, scissors, trimmers etc.), industrial single needle lockstitch machine with needle guard with stools, pouches / baskets for	8 Theory (2:00) Practical (6:00)
		Production Data Analysis and Performance Monitoring	- Analyse production data to identify deviations, trends, and operational performance issues. - Evaluate production records to detect areas requiring corrective action. - Interpret production information to support operational decision-making.	AMH/N2108 PC2			8 Theory (2:00) Practical (6:00)
		Visual Reporting and Performance Dashboards	- Create visual reports using graphs, Pareto charts, dashboards, and other reporting tools. - Interpret production reports for efficiency and hourly production tracking. - Evaluate visual production data to communicate performance effectively.	AMH/N2108 PC3, KU10			8 Theory (2:00) Practical (6:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Root Cause Analysis Techniques	- Explain the purpose of Root Cause Analysis in solving production problems. - Apply Root Cause Analysis techniques such as the 5 Whys and Fishbone Diagram to investigate production issues. - Analyse production problems to determine their underlying causes.	AMH/N2108 PC4		storing items and cleaning cloth, machine tool-kit, basic stationary, white/black board+ marker+ duster/ chalk, students notes, stopwatches, photocopier, films – work study, rating, sewing operations – methods and time study quantity may vary as per requirement, playing cards (quantity may vary as per requirement), a4 graph book (quantity may vary as per requirement), 1 big table and stools for labs, fire extinguisher and first aid and dustbin, student's chair with table arm, teacher's table and chair,	8 Theory (2:00) Practical (6:00)
		Corrective and Preventive Action Planning	- Explain the importance of Corrective and Preventive Actions (CAPA) in production improvement. - Apply CAPA methodologies to address identified production issues. - Evaluate the effectiveness of corrective actions in improving production performance.	AMH/N2108 PC5			8 Theory (3:00) Practical (5:00)
		Continuous Improvement Methodologies	- Explain the principles of PDCA and DMAIC methodologies used for continuous improvement. - Apply structured improvement approaches to solve production and quality problems. - Evaluate process improvements using continuous improvement techniques.	AMH/N2108 PC5			8 Theory (3:00) Practical (5:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Cross-Functional Problem Resolution	- Explain the importance of collaboration among Production, Quality Assurance, and Industrial Engineering teams. - Apply effective communication practices during issue resolution and escalation. - Evaluate cross-functional efforts to improve production performance.	AMH/N2108 PC6		sewing needle, bobbin, bobbin case, tailor's chalk, types of pins like safety pin etc., sewing thread(-surplus), trims and accessories (variety, the quantity may vary), fabric (surplus, qnt and variety may vary), Projector/ LCD	8 Theory (4:00) Practical (4:00)
		Performance Evaluation and Follow-Up Monitoring	- Evaluate the effectiveness of implemented solutions using follow-up performance metrics. - Analyse performance improvement reports to assess operational progress. - Recommend further improvements based on evaluation findings.	AMH/N2108 PC7			8 Theory (4:00) Practical (4:00)
		Line Balancing and Workload Distribution	- Explain the principles of line balancing and workload distribution in apparel manufacturing. - Analyse different types of production bottlenecks and balancing techniques. - Evaluate balancing methods to improve production flow and efficiency.	AMH/N2108 KU1, KU7			8 Theory (4:00) Practical (4:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Time Standards and Production Capacity	- Explain the concepts of SAM, SMV, pitch time, takt time, operator cycle time, and Work-in-Progress (WIP). - Analyse the relationship between time standards and daily production targets. - Evaluate production capacity using standard production measurement techniques.	AMH/N2108 KU2, KU3			7 Theory (4:00) Practical (3:00)
		Workstation Improvement and Productivity Enhancement	- Explain the principles of method study, motion economy, and workstation improvement. - Apply work aids and machine attachments to improve operational performance. - Evaluate workplace improvements for enhanced productivity and reduced operator effort.	AMH/N2108 KU4, KU8			7 Theory (4:00) Practical (3:00)
		Operator Performance and Quality Improvement	- Explain the role of operator skill matrices and capacity evaluation in production planning. - Analyse the impact of operator capability on production efficiency and quality. - Evaluate the effect of improper line balancing on product quality and overall production performance.	AMH/N2108 KU5, KU9			4 Theory (2:00) Practical (2:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
5.	Communicate and Collaborate Across Departments	Cross-Functional Communication in Apparel Production	- Explain the organisational structure, departmental functions, and key roles involved in apparel production. - Describe standard communication protocols followed while coordinating with Production, Quality, Industrial Engineering, Maintenance, Stores, Merchandising, Cutting, and Finishing departments. - Apply professional communication practices while coordinating with cross-functional teams to support production activities.	AMH/N2109 PC1, KU1, KU2	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Charts, Models, Flip Chart, White-Board/ Smart Board, Marker, Duster Training kit (trainer guide, presentations) Unique Equipment Required:- Fabric checking(in-spection) machine / equipment setup (manual or automatic), measurement tape, tailor's chalk, check sheet and job card, basic stationary items (pens, pencils, erasers), stool, stain removal solvent (the quantity may vary as per requirement), sticker tickets (qnt. may vary), fabric cutting shears, lab dip/pit loom/	8 Theory (2:00) Practical (6:00)
		Operational Coordination and Documentation	- Explain the purpose and use of production reports, WIP sheets, escalation notes, and handover logs. - Analyse workflow dependencies between departments and their impact on production timelines and product quality. - Analyse and report operational delays caused by interdepartmental misalignment using appropriate documentation.	AMH/N2109 PC2, KU3, KU4			8 Theory (4:00) Practical (4:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Escalation Process and Problem Resolution	- Explain organisational escalation hierarchies, approval procedures, and problem-solving approaches used in apparel manufacturing. - Evaluate operational issues and determine appropriate escalation procedures for timely resolution. - Apply cross-functional escalation processes to maintain uninterrupted production flow during breakdowns and delays.	AMH/N2109 PC3, KU5, KU10		strike off samples, spray gun, metallic comb, tweezer, fabric inspection bulletin (eg.4-point system), fabric defect list, record maintenance sheet, white/black board+ marker+ duster/ chalk, board pen, trainees' chairs, with table rms, defect samples, colour matching cabinet (light box), continuity chart, pantone shade card, crock meters, fire safety equipment, teacher's chair and table, dexterity test kit, students notes/ manuals, trainer's table and chair, first aid & dustbin, basic stationary items	8 Theory (4:00) Practical (4:00)
		Production Huddles and Team Communication	- Explain the purpose and importance of daily production huddles in achieving production targets. - Apply effective communication techniques to conduct production huddles with participation from key floor staff and cross-functional teams. - Communicate production targets, resource availability, priorities, and critical operational issues during daily huddles.	AMH/N2109 PC4, PC5, KU8			8 Theory (4:00) Practical (4:00)
		Two-Way Communication and Team Engagement	- Explain the importance of workplace etiquette, professional behaviour, and conflict resolution during team interactions. - Analyse two-way communication to capture employee concerns, suggestions, and operational feedback. - Evaluate communication practices that encourage teamwork and continuous improvement.	AMH/N2109 PC6, KU6			7 Theory (4:00) Practical (3:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Team Performance Monitoring and Production Alignment	- Apply daily team performance metrics to monitor progress towards shift production goals. - Analyse daily performance gaps using production data and operational feedback. - Recommend realignment strategies to improve team performance and production efficiency.	AMH/N2109 PC7, PC8		(pens, pencils, erasers), fabric, samples (garments, made ups and home furnishing)	7 Theory (4:00) Practical (3:00)
		Performance Review and Action Planning	- Explain the purpose of weekly alignment meetings in monitoring operational performance. - Evaluate team performance using production data and performance indicators. - Develop action plans based on identified performance gaps to support continuous operational improvement.	AMH/N2109 PC9			7 Theory (4:00) Practical (3:00)
		Digital Communication, Reporting, and Compliance	- Explain the use of digital communication tools, MIS platforms, reporting systems, and coordination software in apparel manufacturing. - Apply safety, compliance, and confidentiality guidelines while sharing departmental information. - Evaluate the role of digital reporting systems in improving coordination, communication, and operational efficiency.	AMH/N2109 KU7, KU9			7 Theory (4:00) Practical (3:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
6	Ensure Safety and Compliance Standards on Production Floor	Workplace Safety Regulations, Compliance, and Hazard Management	- Explain workplace safety regulations, apparel industry compliance standards, and organisational codes of conduct applicable to production operations. - Apply systematic workplace inspections using standardised safety checklists to verify compliance with regulatory requirements. - Analyse compliance with workplace safety procedures using feedback received from workers and supervisors. - Analyse workplace hazards through risk assessment and root cause analysis techniques. - Evaluate identified workplace risks and recommend appropriate preventive safety measures. - Apply safe machine operation, ergonomic practices, Personal Protective Equipment (PPE), and hazard reporting procedures to maintain a safe working environment.	AMH/N2110 PC1, PC2, PC3, PC4, PC5, KU2, KU5, KU6, KU8	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Charts, Models, Flip Chart, White-Board/ SmartBoard, Marker, Duster Documents related to the subject, Computer with peripherals Basic Stationery	8 Theory (3:00) Practical (5:00)
		Safety Training, Audits, and Workplace Quality Practices	- Explain the importance of safety training, internal safety audits, and quality assurance practices in apparel manufacturing. - Apply effective methods for conducting workplace safety training sessions for employees.	AMH/N2110 PC6, PC7, KU1, KU3, KU4, KU10			8 Theory (4:00) Practical (4:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			- Apply internal safety audits across departments using established audit procedures and documentation practices. - Explain common garment defects, quality checkpoints, workplace hygiene, and 5S practices that contribute to safe and efficient operations. - Maintain quality documentation and rejection logs to support workplace compliance and continuous improvement.				
		Employee Participation and Safety Communication	- Explain the importance of employee participation in improving workplace safety performance. - Develop and maintain feedback mechanisms that encourage workers to report safety concerns and improvement suggestions. - Apply safety meetings, workshops, and awareness campaigns involving cross-functional teams to strengthen workplace safety culture. - Evaluate employee perception of workplace safety using surveys, feedback tools, and communication mechanisms. - Recommend improvements in workplace safety practices based on employee feedback and participation.	AMH/N2110 PC8, PC9, PC10			8 Theory (4:00) Practical (4:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Emergency Preparedness and Environmental Safety Practices	- Explain the basic principles of fire safety and emergency response procedures applicable to apparel manufacturing. - Apply appropriate actions during workplace emergencies in accordance with organisational safety procedures. - Explain environmental norms related to workplace waste disposal and sustainable practices. - Apply environmentally responsible waste disposal methods while maintaining workplace safety and regulatory compliance.	AMH/N2110 KU7, KU9			6 Theory (4:00) Practical (2:00)
7.	Manage the workspace, operate tools, and handle machinery efficiently.	Safe Workplace Practices and Material Handling	- Explain the importance of good health, personal hygiene, duty of care, and safe working practices in apparel manufacturing. - Describe the relationship between individual work roles and the overall manufacturing process. - Apply safe techniques while handling materials, machinery, equipment, and tools to maintain a clean and hazard-free workplace. - Apply correct lifting and material handling techniques to prevent workplace injuries. - Evaluate methods for optimising material usage, minimising waste, and disposing of waste and by-products according to organisational procedures.	AMH/N0310 PC1, PC2, PC3, KU1, KU2, KU4, KU11, KU13	Classroom lecture / PowerPoint Presentation / Question & Answer / Group Discussion	Charts, Flip Chart, White-Board/ Smart Board, Marker, Duster First Aid kit, Fire Extinguisher, machinery and equipment	8 Theory (3:00) Practical (5:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Equipment Maintenance, Cleaning, and Hazard Reporting	- Explain the limits of individual responsibility in equipment maintenance, cleaning, and workplace safety. - Apply routine maintenance and cleaning procedures according to assigned schedules and organisational guidelines. - Evaluate equipment conditions and promptly report unsafe, damaged, or malfunctioning equipment and hazardous incidents to authorised personnel. - Verify the presence of appropriate machine guards and apply safe operating practices during equipment use. - Explain the effects of contamination on products and apply suitable cleaning equipment, cleaning substances, and safe cleaning methods to maintain product quality and workplace safety. - Describe common equipment faults, maintenance procedures, workplace hazards associated with maintenance activities, and appropriate corrective actions.	AMH/N0310 PC4, PC5, PC6, PC8, KU3, KU12, KU14, KU15, KU16, KU17, KU18, KU19, KU20			8 Theory (4:00) Practical (4:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Workplace Communication, Instructions, and Operational Compliance	- Explain the importance of effective communication with supervisors and colleagues in maintaining safe and efficient operations. - Interpret organisational rules, quality standards, reporting procedures, work instructions, and equipment operating manuals accurately. - Apply written instructions, work specifications, and manufacturer guidelines while performing workplace tasks. - Use information provided in work instructions and specifications to perform assigned activities correctly and safely. - Evaluate the importance of timely reporting and communication when workplace problems or unsafe conditions are identified.	AMH/N0310 PC5, KU5, KU6, KU7, KU8, KU9, KU10			8 Theory (4:00) Practical (4:00)
		Ergonomics and Safe Workplace Operations	- Explain the importance of ergonomically correct working posture in preventing fatigue and workplace injuries. - Apply safe and comfortable working postures while performing production and material handling activities.	AMH/N0310 PC7, KU1, KU2			6 Theory (4:00) Practical (2:00)

SL	Module Name	Session name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			- Evaluate workplace practices that promote employee well-being, safety, and operational efficiency. - Apply organisational safety practices and professional conduct to maintain a safe and productive work environment.				
Total Duration							Theory: 156:00 Practical: 174:00
Employability Skills (DGT/VSQ/N0102) https://www.skillindiadigital.gov.in/content/list							60:00
Total							Theory + Practical + ES 480:00

Annexure II

Assessment Criteria

CRITERIA FOR ASSESSMENT OF TRAINEES

Assessment Criteria for Apparel Operations Data Specialist	
Job Role	Apparel Operations Data Specialist
Qualification Pack	AMH/Q2102, V1.0
Sector Skill Council	Apparel

S. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below.)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
5	To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS.
6	In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
7	In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Assessment Outcomes	Assessment Criteria for Outcomes	Marks Allocation		
		Theory	Practical	Viva
AMH/N2106: Co-ordinate Apparel Production and Workforce Operations	Coordinate Apparel Production and Workforce Operations	30	40	10
	PC1. Understand the stages and key activities in the apparel production process.	5	6	1
	PC2. Apply production plans and order requirements to estimate manpower needs per department.	4	3	1
	PC3. Apply and communicate daily manpower deployment plans to line supervisors and relevant departments.	3	4	2
	PC4. Analyze with HR, IE, and production teams to ensure timely workforce availability and task alignment.	2	4	-
	PC5. Analyze and record attendance, absenteeism, and workforce performance trends.	4	3	-
	PC6. Evaluate the impact of manpower allocation on production output and suggest adjustments to improve efficiency.	3	6	1
	PC7. Analyze and report manpower shortages, overstaffing, or skill mismatches.	3	5	1
	PC8. Apply in production meetings to align manpower resources with line performance and production goals.	3	5	2

	PC9. Evaluate in developing skill matrices and training plans to address manpower capability gaps.	3	4	2
	NOS Total	30	40	10
AMH/N2107: Design Efficient Line Layouts and Manage WIP Flow	Design Efficient Line Layouts and Manage WIP Flow	33	42	6
	PC1. Analyze production orders, style specs, and machine requirements to plan the appropriate line layout.	5	6	1
	PC2. Create line layout considering operator skill level, operation sequence, and machine type.	4	4	1
	PC3. Evaluate line layout efficiency through time-and-motion study or mock runs.	3	6	1
	PC4. Apply WIP movement across workstations and record real-time status.	5	5	-
	PC5. Analyze WIP imbalances or bottlenecks and investigate root causes.	4	5	1
	PC6. Apply corrective actions (e.g., operator reassignment, buffer balancing) to restore WIP flow.	4	5	1
	PC7. Apply layout and WIP plans with production, IE, and quality teams.	4	6	1
	PC8. Evaluate line performance post-implementation and propose improvements in layout or WIP management.	4	5	-
	NOS Total	33	42	6
AMH/N2108: Evaluate Produc- tion Performance and Implement Root Cause Solu- tions	Evaluate Production Performance and Implement Root Cause Solutions	28	35	11
	PC1. Understand and monitor KPIs such as efficiency, absenteeism, downtime, and defect rates.	3	4	2
	PC2. Analyze production data and identify deviations or performance issues.	3	5	1
	PC3. Create visual tools (e.g., graphs, Pareto charts, dashboards) to present production performance.	4	6	1
	PC4. Apply root cause analysis techniques (e.g., 5 Whys, Fishbone diagrams) to investigate production issues.	6	5	2
	PC5. Evaluate and implement corrective and preventive actions (CAPA, PDCA, DMAIC) based on analytical findings.	5	5	2
	PC6. Collaborate with departments (QA, IE, Production) for problem resolution and issue escalation.	5	5	2
	PC7. Evaluate effectiveness of solutions using follow-up metrics and performance improvement reports.	2	5	1
	NOS Total	28	35	11
AMH/N2109: Communicate and Collaborate Across Departments	Communicate and Collaborate Across Departments	30	24	6
	PC1. Apply professional communication protocols while coordinating with QA, IE, Maintenance, and Stores.	5	3	-
	PC2. Analyze and report operational dependencies or delays caused by interdepartmental misalignment.	4	2	1
	PC3. Evaluate and implement a cross-functional escalation process to maintain operational flow during breakdowns or delays.	4	5	1
	PC4. Apply daily production huddles ensuring participation of key floor staff and cross-functional representatives.	3	2	1
	PC5. Communicate daily production targets, resource availability, and critical issues during huddles.	2	3	-

	PC6. Analyze two-way communication during huddles to capture team concerns and improvement suggestions.	3	2	1
	PC7. Apply daily team performance metrics in alignment with shift production goals.	5	2	1
	PC8. Analyze daily performance gaps and communicate realignment strategies with team members.	2	2	-
	PC9. Evaluate weekly alignment meetings to review team performance, document key gaps, and agree on action plans.	2	3	1
	NOS Total	30	24	6
AMH/N2110: Ensure Safety and Compliance Standards on Production Floor	Ensure Safety and Compliance Standards on Production Floor	20	10	5
	PC1. Apply workplace safety regulations and apparel industry compliance standards.	3	1	1
	PC2. Apply systematic inspections using standardized safety checklists aligned with regulatory requirements.	2	1	-
	PC3. Analyze adherence to compliance procedures through feedback from workers and supervisors.	2	1	-
	PC4. Analyze workplace hazards through risk assessment and root cause analysis.	3	1	1
	PC5. Evaluate and implement preventive safety measures to address identified risks.	2	1	1
	PC6. Apply and deliver safety training sessions for staff members.	2	1	1
	PC7. Apply and execute internal safety audits across departments.	2	1	-
	PC8. Create and maintain a feedback mechanism for workers to report safety concerns and suggest improvements.	2	1	-
	PC9. Apply safety meetings, workshops, or campaigns involving cross-functional teams.	1	1	-
	PC10. Evaluate employee perception of safety using surveys or feedback tools.	1	1	1
	NOS Total	20	10	5
AMH/N0310: Manage the workspace, operate tools, and handle machinery efficiently.	Maintain the work area, handle tools and machines	14	49	7
	PC1. Employ safe and precise techniques in managing materials, machinery, equipment, and tools to uphold a clean and hazard-free workplace environment.	3	10	1
	PC2. Adhere to proper lifting and handling procedures during operations.	2	7	1
	PC3. Optimize material usage to reduce waste and safely dispose of any waste material at designated locations.	2	4	1
	PC4. Perform routine maintenance and cleaning tasks within assigned responsibilities and agreed-upon schedules.	2	10	1
	PC5. Promptly notify authorized personnel of any unsafe or damaged equipment or hazardous incidents.	1	2	0.5
	PC6. Verify the presence of appropriate machine guards for operational safety.	2	2	0.5
	PC7. Maintain a comfortable and ergonomically sound working posture.	1	7	1
	PC8. Utilize suitable cleaning equipment and methods relevant to the assigned tasks.	1	7	1
	NOS Total	14	49	7

DGT/VSQ/N0102: Employability Skills (60 Hours)	Introduction to Employability Skills	1	1	-
	PC1. identify employability skills required for jobs in various industries	-	-	-
	PC2. identify and explore learning and employability portals	-	-	-
	Constitutional values – Citizenship	1	1	-
	PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-
	PC4. follow environmentally sustainable practices	-	-	-
	Becoming a Professional in the 21st Century	2	4	-
	PC5. recognize the significance of 21st Century Skills for employment	-	-	-
	PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-
	Basic English Skills	2	3	-
	PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-
	PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-
	PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-
	Career Development & Goal Setting	1	2	-
	PC10. understand the difference between job and career	-	-	-
	PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-
	Communication Skills	2	2	-
	PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-
	PC13. work collaboratively with others in a team	-	-	-
	Diversity & Inclusion	1	2	-
	PC14. communicate and behave appropriately with all genders and PwD	-	-	-
	PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-
	Financial and Legal Literacy	2	3	-
	PC16. select financial institutions, products and services as per requirement	-	-	-
	PC17. carry out offline and online financial transactions, safely and securely	-	-	-
	PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-
	PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-
	Essential Digital Skills	3	4	-
	PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-
Entrepreneurship	2	3	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/legal hurdles for the potential business opportunity	-	-	-
Customer Service	1	2	-
PC26. identify different types of customers	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-
Getting ready for apprenticeship & Jobs	2	3	-
PC29. create a professional Curriculum vitae (Résumé)	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-
PC31. apply to identified job openings using offline/online methods as per requirement	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-
NOS Total	20	30	-

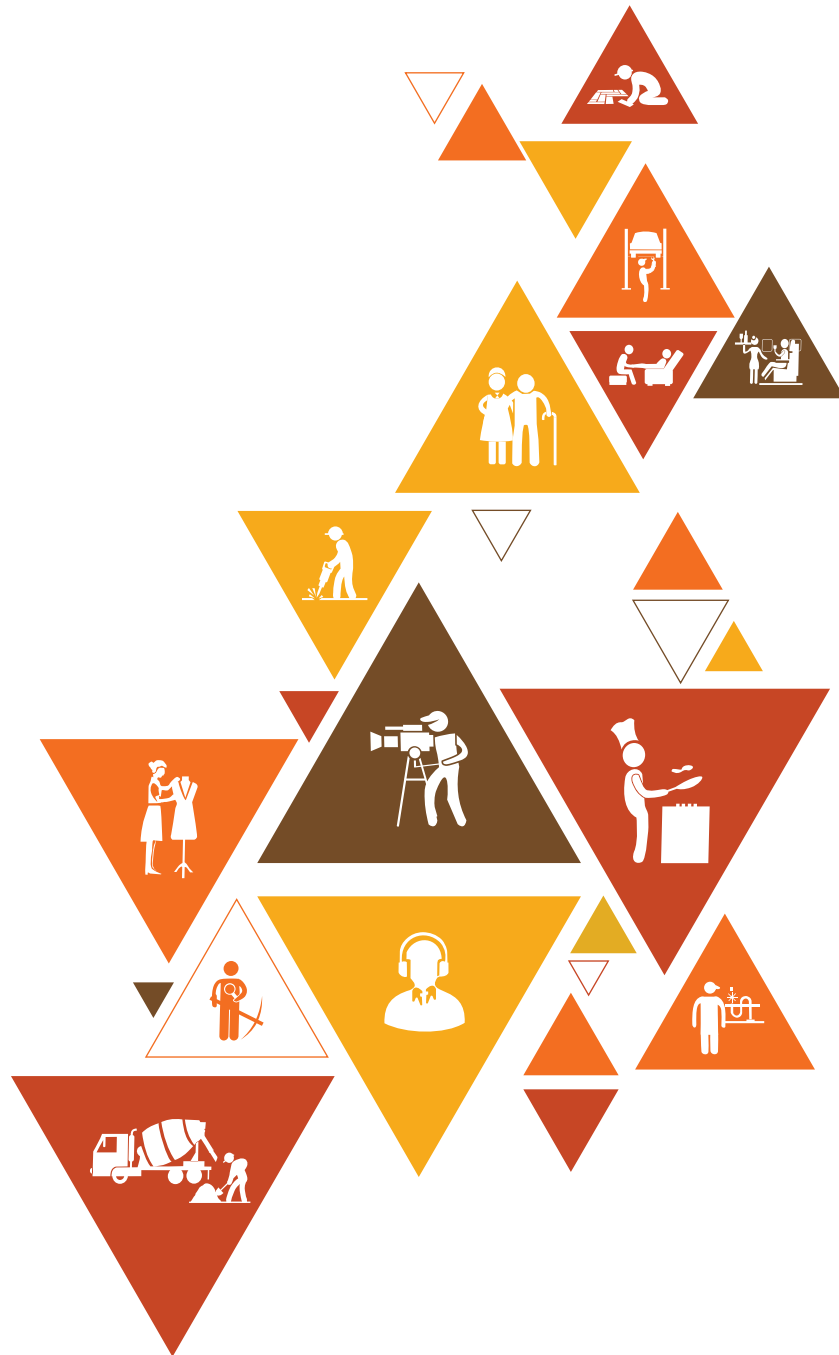
Annexure III

List of QR Codes Used in PHB

Module No.	Unit No.	Topic Name	Page No. in PHB	Link for QR Code (s)	QR code (s)
Module 1: Introduction and Orientation to Apparel Operations Data Specialist	Unit 1.1 Introduction to Apparel Operations	1.1.1 Indian Apparel Industry Overview	20	https://youtu.be/5dLX8m-RAE88	 Indian Apparel Industry Overview
Module 2: Coordinate Apparel Production and Workforce Operations	Unit 2.1 Apparel Production Planning and Coordination	2.1.1 Apparel Production Workflow	51	https://youtu.be/l5j6LTylecM	 Apparel Production Workflow
	Unit 2.2 Production Monitoring and Performance Management	2.2.4 Corrective Actions and Process Improvement	51	https://youtu.be/RfCkccVuBfg	 Corrective preventive action planning (CAPA)
Module 3: Design Efficient Line Layouts and Manage WIP Flow	Unit 3.1 Line Layout Design and Workflow Planning	3.1.3 WIP Management and Lean Principles	77	https://youtu.be/zL7FBeioMLM	 WIP Management and Lean Principles
Module 4: Evaluate Production Performance and Implement Root Cause Solutions	Unit 4.1: Production Performance Evaluation	4.1.4 Performance Benchmarking	103	https://youtu.be/L39d2S7lgDg	 Performance Benchmarking

Module No.	Unit No.	Topic Name	Page No. in PHB	Link for QR Code (s)	QR code (s)
	Unit 4.2: Root Cause Analysis and Continuous Improvement	4.2.1 Root Cause Analysis	103	https://youtu.be/HIOJPr0v0h0	 Root Cause Analysis
Module 5: Communicate and Collaborate Across Departments	Unit 5.1: Communication in Apparel Production	5.1.1 Importance of Workplace Communication	125	https://youtu.be/B3iu5I-vyBs8	 Importance of Workplace Communication
	Unit 5.2: Cross-Department Collaboration and Reporting	5.2.1 Cross-Department Coordination	125	https://youtu.be/q2U_1i581r4	 Cross-Department Coordination
Module 6: Ensure Safety and Compliance Standards on Production Floor	Unit 6.1: Workplace Safety and Compliance	6.1.1 Workplace Safety Regulations and Compliance Standards	150	https://youtu.be/KxgtjN7wSXo	 Workplace Safety Regulations and Compliance Standards
	Unit 6.2: Safety Implementation and Continuous Improvement	6.2.1 Corrective and Preventive Actions	150	https://youtu.be/RfCk-cV-uBfg	 Corrective and Preventive Actions

Module No.	Unit No.	Topic Name	Page No. in PHB	Link for QR Code (s)	QR code (s)
Module 7: Manage the workspace, operate tools, and handle machinery efficiently	Unit 7.1: Workspace and Resource Management	7.1.1 Green Jobs and Sustainable Practices	174	https://youtu.be/-RiEw31t-cg	 Understanding green jobs and sustainability
	Unit 7.2: Safe Handling of Tools and Equipment	7.2.4 Waste Disposal and Safe Storage	174	https://youtu.be/K6ppC-C3lboU	 Waste Disposal and Safe Storage





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**APPAREL MADE-UPS HOME FURNISHING
SECTOR SKILL COUNCIL**

Address: Apparel Made-ups & Home Furnishing Sector Skill Council

Flat No. A-312 to A-323, 3rd Floor, Somdatt Chamber-1,
Bhikaji Cama Place, Africa Avenue, New Delhi-110066

Email: info@sscamh.com

Web: www.sscamh.com