

Syllabus For Lay Planner & Cutter Assistant

Course Name	Lay Planner & Cutter Assistant
Sector	APPAREL, MADE-UPS & HOME FURNISHING
Course Code	APL/2023/LPCA/201
Level	3
Occupation	Lay Planner & Cutter Assistant
Job Description	Lay Planner and Cutter Assistant involves meticulously analyzing fabric properties, interpreting garment patterns and collaborating with senior planners to optimize fabric layouts for efficient material utilization. This role encompasses precise cutting of fabric, pattern alignment and quality control, ensuring the seamless transition of materials for assembly while adhering to safety standards and contributing to a streamlined, cost-effective garment production process.
Course Duration	Total Duration 390 Hrs (T-90, P-180, OJT-60 and ES-60)
Trainees' Entry Qualification	Grade 10 OR Grade 8 with two year of (NTC/ NAC) after 8 th OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject OR 8th grade pass with 2 yrs relevant experience OR Previous relevant Qualification of NSQF Level 2 with one yr experience OR Previous relevant Qualification of NSQF Level 2.5 with 6 months experience
Trainers Qualification	

Structure of Course:

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	Total (Hrs) [Multiple of 30]
1.	Role of Lay Planner and Cutter Assistant	Describe the role of Lay Planner and Cutter Assistant	10	20	30
2.	Calculations related to lay making and fabric estimation	Calculate the amount of fabric needed to minimize material wastage and maximize resource efficiency in the production process	20	40	60
3.	Operation of CAM	Plan and Operate CAM for bulk cutting of the fabric lays	20	40	60

4.	Preparation of the cutting table for fabric cutting	Prepare the cutting table with Fabric cutting operation comply with industry, regulatory, organizational requirements	10	20	30
5.	Reporting process	Identify the reporting process	10	50	60
6.	Safe working practices	Maintain work area, tools and machines with safe working practices	20	10	30
7.	OJT			60	60
8.	Employability Skill		60	--	60
TOTAL:			150	240	390

SYLLABUS:**Module No. 1: Role of Lay Planner and Cutter Assistant****Outcome:** Describe the role of Lay Planner and Cutter Assistant**Theory Content:** The student will be able to describe the following:-

1. Describe the size and scope of the apparel industry.
2. Explain roles and responsibilities of a 'Lay Planner & Cutter / Garment Cutter Assistant'.
3. Describe various Job opportunities for 'Lay Planner & Cutter / Garment Cutter Assistant' in the apparel industry
4. Describe the apparel production process and the role plays by the 'Lay Planner & Cutter / Garment Cutter Assistant'.
5. Explain basic textile terminology, types of fabrics use, fabric characteristics, types of fabric defects etc.
6. Assessing fabric properties,, including type , texture and stretch to determine the optimal layout and cutting techniques for different garments.
7. Explain layering/spreading defects and describe various layering and spreading processes and also discuss various types of patterns, markers, tools and methods required for marking

Practical Content: The students will be able to do the following:-

1. Calculate the quantity of fabrics needed against the job card received
2. Calculate the number of components to be cut for a particular style as per job card.
3. Interpret work instructions and specifications accurately.
4. Interpret equipment operating procedures/manufacturer's instructions.

Tools & Equipment needed:**Training kit (trainer guide, presentations), Unique Equipment Required:**

Dusters, pattern (the quantity may vary), fabrics (as per requirement), trims (the quantity and variety may vary as per requirement), stools, cutting table, "teacher's table, & chair", fabric roll stand, marking pencil (graphite pencil, quantity may vary as per requirement), cut plan document (hard copy), samples of apparel , scales, measuring tape, first aid box & fire extinguisher, made ups and home furnishing samples, job card , stock book, order sheet, dustbin, white board/ black board, marker , students manual/notes, "students chairs ,with table arms", basic stationary

Module No. 2: Calculations related to lay making and fabric estimation

Outcome: Calculate the amount of fabric needed to minimize material wastage and maximize resource efficiency in the production process

Theory Content: The student will be able to describe the following:-

1. Describe the method of identifying the quality and usage of components being cut.
2. Explain different types of fabric laying techniques like straight lay, stepped lay etc.
3. Identify the type of cutting machine which offers better productivity with lesser wastage of materials and time.
4. Determine the amount of fabric required for a specific garment order.
5. Calculate the optimal spacing between pattern pieces to ensure efficient material usage and minimal wastage while adhering to seam allowances, pattern repeats and fabric constraints.
6. Ensure that the lays of the fabric are in accordance with the type of material, taking even the texture into consideration.

Practical Content: The students will be able to do the following:-

1. Calculate the amount of fabric needed, as well as check with the supervisor when unsure of new garment details.
2. Describe the method of calculating the number of components required.
3. Identify the best fabric laying technique so as to minimize wastages.
4. Select marker type as per fabric lay forms and calculate the number of components needed for production.
5. Lay the fabrics in such a way to ensure that the wastage is within the defined tolerance.
6. Spread the marker sheet on the fabric that is laid out.
7. Calculate potential uses for off-cuts or leftover fabric pieces, exploring opportunities for smaller components or accessories to reduce waste and increase resource utilization.
8. Calculate the actual fabric yield achieved after cutting, comparing it to the expected yield based on marker efficiency to assess the accuracy of the lay planning process

Tools & Equipment needed:

Training kit (trainer guide, presentations) and Other Requirements cutting equipment and fabric, machine guards and board and marker

Unique Equipment Required:

White/Black, Board+ Marker + Duster/Chalk, Mini marker, Patterns Marker soft copy (Quantity may vary), Fabrics (eg: Cotton fabric or any. Surplus fabric is used quantity and quality may vary as per

requirement), Cloth Clamp (The quantity and variety may vary), Drills and thread markers, Masking Tapes (The quantity and variety may vary), Soft copy of marker (Feed the required marker to the system to prepare for cutting like the size, sewing information and codes of the fabric or worksheet), Count Ticket (quantity may vary), Bundled Tickets (quantity may vary), Ty-Ups Bundle Ties, Bundle Hooks (The quantity may vary as per requirement), Cutwork Bags, Rubber Band (The quantity may vary as per requirement), Marking Pencil (Graphite pencil, quantity may vary as per requirement), marking Pen, Component List (for number of components needed for production), Fabric Consumption List (the amount of fabric needed), Cut Plan Document (Hard and Soft copy), Stylesheet/ tech pack (provided by buyer), CAM (Computer Aided Manufacturing) machine, Breakdown Report (The quantity may vary as per requirement), Dexterity Test Kit, Basic Stationary, Students Notes, Dustbin, Projector /LCD.

Module No. 3: Operation of CAM

Outcome: Plan and Operate CAM for bulk cutting of the fabric lays

Theory Content: The student will be able to describe the following:-

1. Gather all necessary information, including garment patterns, marker layouts and fabric specifications.
2. Input pattern data into the CAM software, specifying pattern sizes and any variations.
3. Load fabric roll information, including roll width, length and type, into the system
4. Generate markers using CAM software, optimizing pattern placement to maximize material usage and minimize wastage.
5. Consider pattern matching, fabric properties, and cutting constraints while creating markers.
6. Review and refine markers as needed, adjusting pattern placements for optimal results.
7. Prepare the cutting machine by ensuring it is properly calibrated and aligned with the cutting paths generated by the CAM software.
8. Load fabric rolls onto the cutting table and secure them in place
9. Initiate the CAM system to execute the automated cutting process, closely monitoring the machine's operation.
10. Address any issues or interruptions that may arise during cutting, such as fabric jams or machine errors.
11. Generate production reports through the CAM software, detailing fabric usage, yield achieved, cutting time and any deviations from the plan.

Practical Content: The students will be able to do the following:-

1. Explain operating procedures for CAM (ComputerAided Manufacturing).
2. Set up the CAM machine.
3. Explain cutting efficiencies with regard to the material being cut.
4. Ensure no defects on the material before goingahead for cutting.
5. Ensure safety when cutting the material (avoid damaging self and others; avoid damage to the knife and other equipment).
6. Ensure error free working of the motors and the cutting knife in the CAM well before the actual bulkcutting takes place.
7. Feed the required marker to the system to preparefor cutting like the size, sewing information and codes of the fabric or worksheet.
8. Meet company usage tolerances for efficient pattern interlocking.

Tools & Equipment needed:
training kit (trainer guide, presentations)

Unique Equipment Required:

White/Black, Board+ Marker+ Duster/Chalk, Computer System (CAD/CAM support), CAM Software (Computer Aided Manufacturing), Cutter Plotter, Projector /LCD, Patterns Marker soft copy (Quantity may vary), Fabrics (eg:Cotton fabric or any. Surplus fabric is used quantity and quality may vary as per requirement), Trainees Chairs With Table Arms, Trainer's chair And Table, First Aid and Fire Extinguisher, Vacuum Pressure(attached in cutting table) , Thin Plastic Film or Poly overlay/poly sheeting (quantity may vary), Kraft Underlay Paper(quantity may vary), Separating Tissue (quantity may vary), Basic Stationary, Students Notes, Dustbin etc.

Module No. 4: Preparation of the cutting table for fabric cutting

Outcome: Prepare the cutting table with Fabric cutting operation comply with industry, regulatory, organizational requirements

Theory Content: The student will be able to describe the following:-

1. Describe the importance of a vacuum system on the cutting table
2. Describe the importance of a thin plastic sheet in the fabric laying process.
3. Ensure the fabric layers are clipped at suitable points to restrict sliding of fabric layers during cutting.
4. Ensure the bundled tickets have all the necessary information like style number, cutpiece name, etc.
5. Describe how to rectify different faults that occur in cutting machines while cutting fabrics.
6. Identify consequences of not identifying and rectifying problems.
7. State benefits to self and the organization due to practice of values and ethics. Interpret legal, regulatory and ethical issues in Clothing Industry- honesty, leadership, responsibility, transparency, and environmental concerns etc.
8. State customer specific requirements mandated as a part of the work process.
9. State country/customer specific regulations for the apparel sector and their importance.

Practical Content: The students will be able to do the following:-

1. Ensure that the cutting table is well equipped with a vacuum system.
2. Ensure that the fabric spread is covered with a thin plastic film which is drawn against the spread by vacuum- this holds the lay steady and prevents shifting of plies during cutting.
3. Cut the fabric layers manually and with electrically operated cutting equipment like band knife, straight knife, etc. as mentioned in the job card.
4. Identify the cut parts, count tickets and then group them well to pass on.
5. Carry out work functions in accordance with organizational standards, greening solutions, procedures, policies, legislation and regulations.

Tools & Equipment needed:

Tools and equipment, maintenance and cleaning equipment, training kit (trainer guide, presentations)

Unique Equipment Required:

Cutting table (As per required), Vacuum Pressure (attached in cutting table) , Electrically operated cutting equipment like band knife, straight knife, etc. and fabric and board and marker, Fabric cutting scissors, White/Black, Board+ Marker+ Duster/Chalk, Mini marker, Fabrics (eg:Cotton fabric or any. Surplus fabric is used quantity and quality may vary as per requirement), Disposable die cutting pad / clicker pads (increases the life of the cutting surface and eliminate the uneven cutting surfaces that develop on

permanent pads.), Thin Plastic Film (quantity may vary), Separating Tissue (quantity may vary), Perforated Kraft (quantity may vary), Spray Adhesives (quantity may vary), Straight Pins (quantity may vary), Fabric roll stand, Rubber Moulded Layer Weight (The quantity and variety may vary), Cloth Clamp (The quantity and variety may vary), Drills and thread markers, Count Ticket (quantity may vary), Bundled Tickets (quantity may vary), Ty-Ups Bundle Ties , Bundle Hooks (The quantity may vary as per requirement), Cutwork Bags, Rubber Band (The quantity may vary as per requirement), Marking Pencil (Graphite pencil, quantity may vary as per requirement), marking Pen, Component List (for number of components needed for production), Cut Plan Document (Hard and Soft copy), CAM (Computer Aided Manufacturing) machine, Basic Stationary, Students Notes, Dustbin,

Module No. 5: Reporting process

Outcome: Identify the reporting process

Theory Content: The student will be able to describe the following:-

1. Identify the escalation hierarchy
2. Identify reporting structure of the organization
3. Identify who to refer problems to when they are outside the limit of own authority.
4. Identify Fabric utilization report
5. Compare the expected fabric yield to the actual fabric yield achieved after cutting to assess the accuracy of the lay planning process
6. Highlight any innovative approaches or strategies employed to minimize fabric

Practical Content: The students will be able to do the following:-

1. Report defects in the machine that one does not have the authority to repair.
2. Report risks/problems likely to affect services to the relevant person promptly and accurately.
3. Provide information on the performance of cutting machines including any maintenance activities conducted, calibration adjustments and any machine related challenges.
4. Note any changes or variations in pattern sizes, quantities or styles that impact the lay planning and cutting process and how these variations were accommodated.
5. Complete forms, records and other documentation.

Tools & Equipment needed:

Training kit (trainer guide, presentations) required equipment's.

Module No. 6: Safe working practices

Outcome: Maintain work area, tools and machines with safe working practices

Theory Content: The student will be able to describe the following:-

1. Describe safe working practices for cleaning and maintenance of equipment.
2. Describe effects of contamination on products i.e. Machine oil, dirt etc.
3. Describe various machines used for layering and spreading processes.
4. List procedures to conduct maintenance of tools and equipment.
5. Describe the lines of communication, authority and reporting procedures.
6. Describe the company's quality standards.
7. State safe working practices and organizational procedures

Practical Content: The students will be able to do the following:-

1. Handle materials and tools safely and correctly
2. Use cleaning equipment and methods appropriate for the work to be carried out.
3. Identify common faults with equipment and the method to rectify.
4. Use correct lifting and handling procedures.
5. Carry out cleaning according to schedules and limits of responsibility.
6. Dispose off waste safely in the designated location.
7. Store cleaning equipment safely at the designated place after use.

Tools & Equipment needed:

White/Black, Board+ Marker+ Duster/Chalk, Patterns Marker soft copy (Quantity may vary), Trainees Chairs With Table Arms, Trainer's chair And Table, First Aid and Fire Extinguisher, Basic Stationary, Students Notes, Dustbin

Learning Outcome – Assessment Criteria

Module No.	Learning Outcome	Assessment Criteria
1	Introduction and Orientation to Garment Cutter Assistant, Plan for the fabric cutting process	1.1 Explain Job scope of the apparel industry. 1.2 Describe Roles and responsibilities of a 'Lay Planner & Cutter'. 1.3 Illustrate basic textile terminology and their use 1.4 Identify fabric defects types & their characteristics. 1.5 Demonstrate about various layering and spreading processes and tools to be use 1.6 Calculate the quantity of fabrics needed against the job card received. 1.7 Interpret work instructions and specifications
2	Basic calculations related to lay making and fabric estimation	2.1 Identify the quality lay making 2.2 Describe the method to be use to cut the components of Lay 2.3 Explain Fabric laying techniques- straight lay, stepped lay. 2.4 Identify the different types of cutting machine. 2.5 Adopt better productivity with lesser wastage of materials 2.6 Follow the procedure to spread the marker sheet on the fabric that is laid out.
3	Plan and Operate CAM for bulk cutting of the fabric lays	3.1 Describe the CAD/CAM 3.2 Explain the mechanism of the CAM. 3.3 Identify the cut parts, count tickets 3.4 Set the CAM machine 3.5 Ensure no defects on the material before going ahead for cutting. 3.6 Ensure error free working of the motors 3.7 Follow company usage tolerances for efficient pattern

Module No.	Learning Outcome	Assessment Criteria
		interlocking
4	Prepare the cutting table with Fabric cutting operation comply with industry, regulatory, organizational requirements	4.1. Explain the importance of a vacuum system of Cutting table. 4.2. Describe the purpose of thin plastic sheet use in fabric laying process. 4.3 State customer specific requirements mandated as a part of the work process. 4.4 Identify the cut parts, count tickets 4.5 Interpret correctly legal, regulatory and ethical requirements specific to the apparel industry.
5	Identifying the reporting process	5.1 Identify the escalation hierarchy? 5.2 identify reporting structure 5.3 Report the defects in the machine that one does not have the authority to repair 5.4 Prepare a report on defects in the machine. 5.5 Maintain the forms, records and other documentation.
6	Maintain work area, tools and machines with safe working practices	6.1 Clean and maintain the equipment & tools. 6.2 Explain various machines used for layering and spreading 6.3 Maintain the company's quality standards. 6.4 Follow correct lifting and handling procedures with material 6.5 Follow safe working practices and organizational procedures 6.6 Dispose off waste materials in the designated location.
7	OJT	
8	Employability Skill	As per NCVET guided curriculum

List of Tools, Equipment & materials needed for 30 Trainees

SI No	Items Name	Specification	Qty
1	Cutting table		As per required
2	Stools		30 Nos
3	Vacuum pressure		5 Nos
4	Die cutting pad		As per required
5	Thin plastic film		As per required
6	Poly sheeting		As per required
7	Paper separating tissue		As per required
8	Craft underlay		As per required
9	Spray adhesives		As per required

SI No	Items Name	Specification	Qty
10	Straight pins, cloth clamp		As per required
11	Fabric roll stand , rubber moulded	layer weight	As per required
12	Drills and thread markers, masking tapes		15 Nos
13	Stainless steel mesh gloves		30 Nos
14	Straight knife, round knife		5 Nos Each
15	Fabric cutting scissors		30 Nos
16	Marking pencil, marking pen		30 Nos each
17	24" scales, measuring tape		30 Nos
18	White board / black board		1 No
19	Students chairs ,with table arms		30 Nos
20	Teacher's table, & chair		1 set
21	Projector /LCD		1 No
22	Computer System (CAD/CAM support)		15 Nos.
23.	CAD software as per required		15 Nos.
24	Cutter Plotter		As per required

Marks Distribution

Outcome	Outcome Code	Total Th marks	Total Pr. Marks
Describe the role of Lay Planner and Cutter Assistant	APL/0308/OC1	20	90
Calculate the amount of fabric needed to minimize material wastage and maximize resource efficiency in the production process	APL/0308/OC2	40	120
Plan and Operate CAM for bulk cutting of the fabric lays	APL/0308/OC3	30	120

Prepare the cutting table with Fabric cutting operation comply with industry, regulatory, organizational requirements	APL/0308/OC4	20	90
Identify the reporting process	APL/0308/OC5	20	140
Maintain work area, tools and machines with safe working practices	APL/0308/OC6	20	90
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	APL/0308/OC7	0	150
Employability Skill-60 Hrs	DGT/VSQ/N0102	50	0