GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Diploma Engineering

Level: Diploma

Branch: Computer Aided Costume Design & Dress Making

Subject Code: DI04051011

Subject Name: Apparel Production and Quality Control

w. e. f. Academic Year:	2025-26
Semester:	4th
Category of the Course:	PCC

Prerequisite:	-
Rationale:	The apparel industry demands precision, efficiency, and quality assurance at every stage from material handling to garment finishing. This course introduces students to the fundamentals of apparel production systems and quality control mechanisms. It covers key processes such as warehouse management, fabric inspection, cutting, sewing, finishing, and packaging, integrating both traditional methods and modern quality practices. Students will develop the ability to analyze, plan, and monitor production activities, ensuring high-quality output that meets international standards. By the end of the course, they will possess conceptual understanding, preparing them for roles in production management, quality assurance, and merchandising within the apparel industry.

Course Outcome:

After Completion of the Course, Student will able to:

No.	Course Outcomes	RBT Level
01	Describe warehouse and store management systems.	R
02	Distinguish fabric quality using standard testing methods.	U
03	Explain sewing processes and inspection points for quality production.	U
04	Determine finishing techniques to reduce defects and ensure garment quality.	A
05	Interpret National and international standards and specifications.	U

**Revised Bloom's Taxonomy (RBT)*

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	PR	C	ESE(E)	PA(M)	PA(I)	ESE(V)	
4	0	0	4	70	30	0	0	100

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	**Warehouse & Store Management** 1.1. Store systems: LIFO, FIFO. 1.2. Purpose and processes in warehouse management. 1.3. Types of Production Reports: Operator attendance report, Daily production report, Hourly production report, Manpower & Machine attendance report, Garment inspection report, Repair and rejection report & Cutting production report. 1.4. Delivery challan.	10	15
2.	**Cutting Department & Fabric Quality** 2.1. Marker planning and making (woven/knit fabrics, plaids, checks). 2.2. Fabric inspection systems: 4-point system & 10-point system. 2.3. Fabric testing: • Physical tests: GSM, Ends per inch, Picks per inch • Mechanical tests: Tensile, Abrasion, Pilling • Chemical test: Colorfastness. 2.4. Fabric Defects: Bowing, Skewing, Float, Barre, Broken ends, Broken picks, Holes, Uneven dyeing, Misprinting, Drop stitches, Defective Selvedge. 2.5. Quality Parameters in Cutting & Fusing: • Marker making: Fabric utilization, Pattern alignment, Cutting efficiency & Piece placement accuracy. • Spreading: Tension control, Alignment & symmetry, Elimination of defects & Lay stability.	20	35

	• Cutting: Cutting accuracy, Consistency across layers, Minimization of notches and defects, Safety & Blade maintenance. • Bundling: Correct grouping, Labeling & identification, Protection of fabric pieces & Consistency in bundle size. • Ticketing: Accuracy of information, Secure attachment, Durability, Clarity & Legibility. • Fusing: Delamination, Bubbling & Blistering, Shrinkage & Distortion, Colour change, Adhesive Strike-through & Peeling.		
3.	**Sewing Department & Process Quality** 3.1 Operation breakdown and line balancing. 3.2 WIP management. 3.3 Under pressing. 3.4 Types of Inspection: In-line inspection, End-of-line inspection, Random sampling inspection, In-line Quality Control (IQC) inspection. 3.5 Setting up of inspection points. 3.6 Inspection Loop& its importance. 3.7 Trims planning.	14	25
4.	**Finishing & Inspection** 4.1 Ironing, pressing& tagging. 4.2 Cut to pack ratio, Packing ratio & Packing methods. 4.3 Carton Marking. 4.4 Finishing Defects: Pressing marks, Stains & spots, Untrimmed threads. Label &Tag misplacement, Colour shading, Broken/Missing Buttons Zipper &Trims, Loose or Weak seams, Incorrect folding & packing.	10	15
5	**Standards and Specifications** 5.1 National &International standards: ISO, BIS, ASTM, AATCC 5.2 Process of developing specifications.	06	10

	5.3 Importance of specifications in apparel production.		
	Total	**60**	**100**

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
40	**50**	**10**	**--**	**--**	**--**

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1. Warehouse Management: Gwynne Richards Published by Replika Press Pvt. Ltd.4737/23, New Delhi - 110002, India ISBN: 978 0 7494 6934 4, E-ISBN: 978 0 7494 6935 1
2. Garment Manufacturing: Prasanta Sarkar Published by Online Clothing Study Gurgaon, India.
3. Managing Quality in Apparel Industry: Mehta & Bharadwaj Published by New Age International Publisher, Delhi ISBN-10:81 224 1166 5, ISBN-13: 978 8122411669
4. An Introduction to Quality Control for the Apparel Industry: Pradip V. Mehta Published by CRC Press; 1st edition ISBN-13: 978-0824786793
5. The Technology of Clothing Manufacturing: Harold Carr and Barbara Latham published by Blackwell Publishing ISBN: 0 6320 5694 0

(b) Open-source software and website:

1. https://www.hqts.com/apparel-quality-control-standards-and-procedures/
2. https://ordnur.com/journal/standardization-of-apparel-manufacturing-industry/
3. https://textilevaluechain.in/in-depth-analysis/articles/textile-articles/textile-testing-and-quality-control/
4. https://textilelearner.net/quality-control-in-fusing/
5. https://in.apparelresources.com/business-news/manufacturing/online-final-inspection-cutting-sewing-finishing/
6. https://www.textileindustry.net/finishing-department-in-apparel-industry/

7. https://www.egyankosh.ac.in/bitstream/123456789/100447/1/Unit-18.pdf

Suggested Project List:

1. Collect 3-4 fabric samples having defects and identify the defects.
2. Bring 5 different brand garment (Products should be the same) and Identify differences from each which are not related to design of the products (Stitches types, Seams, Finishes, Fasteners, Assembly etc.).
3. Inspect a garment for quality defects and identify the cause of the defects. They can create a report highlighting the defects, their causes, and possible solutions to prevent such defects in the future.
4. Prepare markers for different fabric types (checks, plaids, knits) and Compare fabric utilization %, cutting efficiency.

Suggested Activities for Students: If any

1. Visit garment factories to study warehouse/cutting/sewing/finishing.
2. Perform fabric defect identification and grading.
3. Prepare inspection reports of garments.
4. Compare garments from different brands based on quality.

* * * * * * *