GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Engineering

Level: PG

Subject Code: ME03025021

Subject Name : Advance Apparel Engineering

w. e. f. Academic Year:	2024-25
Semester:	3
Category of the Course:	MOPEC

Prerequisite:	Basic Textile and Garment Technology at BE level. Testing of fibre, yarn and fabric at BE level.
Rationale:	This course is designed to provide an understanding of clothing manufacture process to produce high quality garment, understanding critical machine and material parameters which influence product quality, to know important process parameters which determine product quality and ability to select fabric for different end use applications. It will also provide knowledge of common defects both in fabric and garment.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Understand and interpret basics of apparel sizing systems, basic operations of garment manufacturing and sewing dynamics.
02	Create a size chart of any one garment using data collected through a survey.
03	Analyse the level of automation necessary for a particular industry depending on various parameters.
04	Develop suitable level of fabric specifications keeping in mind the comfort, functionality, cost and processibility on existing set of technology.

**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 / CA (M)	PA/CA (I)	ESE (V)	
3	0	0	3	70	30	0	0	100

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	Anthropometric studies, Improving apparel sizing and fit, 3D body scanning, Measuring and predicting fabric and garment drape, Concept of mass customization.	10	24
2.	Engineering aspects of clothing manufacturing process Introduction to clothing manufacturing process, stitch and seam, classification and standard notations, trims, lining and interlining, fusing, pressing, Needle size and selection, Feeding systems, Automation, timing cycles for common sewing machines, Sewing Dynamics, Tailorability, Formability, Sewability.	12	28
3.	Automation in apparel manufacturing Automation in fabric inspection, Artificial intelligence and its application in the apparel industry, Automation in spreading and cutting, Automated fabric pattern matching, Automation in material handling, Automation in sewing technology.	10	24
4.	Functional Apparels Physiological and psychological comfort aspects, Functional Fabrics in Clothing for Physiological Comfort, Engineering of functional clothing for drape, crease, texture, waterproofing, u-v protection and bagging effect, functional finishes to fabric and garments, apparels for special end uses.	10	24

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
20	30	30	10	5	5

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. Apparel Manufacturing Technology, T. Karthik, P. Ganeshan, D. Gopalakrishnan, CRC Press, 2017
2. Advances in Apparel Production, Ed. C. Fairhurst, CRC Press, 2008

3. Engineering Apparel Fabrics and Garments, J. Fan & L. Hunter, Woodhead Publication, 2009
4. Anthropometry, Apparel Sizing and Design, Ed. Deepti Gupta & N. Zakaria, The Textile Institute, Manchester, 2014
5. Automation in Garment Manufacturing, Ed. Rajkishore Nayak & Rajiv Padhye, Elsevier, 2018
6. Garment Manufacturing Technology, Ed. Rajkishore Nayak & Rajiv Padhye, The Textile Institute, Manchester, 2015

(b) Open source software and website:

1. http://nptel.iitm.ac.in
2. World Wide Web, Google Search Engine etc.

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