



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Engineering

Level: PG

Branch: Textile Engineering

Subject Code : ME03025051

Subject Name : Science of Clothing Comfort

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

Prerequisite:	All core textile subjects.
Rationale:	Understanding the aspects of science in perceiving the comfort by the human being and the science and technology of clothing that deals with the comfort.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
01	Understand idea of science behind the clothing comfort and other aspects of textile materials like fibre, yarn and fabric	R, U
02	Understand Psychology, Psychological and Psychological aspects related to clothing comfort.	R, U
03	Understand perception of clothing comfort by human sensory system and psychophysics, psychological aspects of clothing comfort	R, U
04	Understand Moisture Transmission, heat and mass transmission aspects related to clothing comfort.	R, U
05	Design of garment as per factor related to garment fit and comfort.	U, A, E

**Revised Bloom's Taxonomy (RBT)*



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Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				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.	Outline of Science of Clothing Comfort-Outline, Need and selection of clothing, Components of clothing comfort, Components of clothing comfort, Human–clothing interactions, Understanding Clothing & Clothing Comfort	4	10
	Psychology & Comfort - Psycho-physiological factors of clothing comfort, Psychophysics and clothing comfort, Wear trial techniques, Psychological aspects of aesthetic comfort; Neurophysiological Processes in Clothing Comfort - Neurophysiological perceptions, Mechanical and thermal receptors, Sensory perceptions of human body, Physiological requirements of the human body	7	17
2.	Tactile Aspects of Clothing Comfort - Tactile comfort sensations, Fabric handle attributes for expressing tactile comfort, Assessment of fabric handle characteristics, Fabric parameters affecting tactile sensation	6	14
3.	Clothing Comfort Related to Thermal Transmission - Thermo-regulation in human body, Thermal distress, Thermoregulation through	7	17



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	clothing system, Thermal comfort of clothing, Transient heat flow and warm-cool touch of fabrics, Measurement of thermal transmission characteristics, Parameters for expressing thermal characteristics, Thermal transmission characteristics of fabrics		
4.	Moisture Transmission & Clothing Comfort- Introduction, Liquid water transfer: wicking and water absorption, Principles of moisture vapour transfer, Condensation of moisture vapour, Evaluation of moisture vapour transmission, Moisture sensation in clothing	7	17
5	Dynamic heat and mass transmission- Combined heat and moisture interactions with textile, Factors affecting heat and mass transfer through fabrics, Evaluation of heat and mass transmission, Parameters expressing heat and mass transmission	8	17
6	Garment Fit & Comfort - Introduction, Body dimensions and pattern, Garment fit and comfort relationship, Factors related to garment fit, Measurement of garment fit	6	10
	Total	45	100

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	U Level	A Level	N Level	E Level	C Level
20	25	35	10	10	0

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:



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- 1) Science in Clothing Comfort, Apurba Das and R. Alagirusamy, Woodhead Publishing India Ltd., 2010.
- 2) K. Slater, The Thermal Behaviour of Textiles, Textile Progress, Vol. 8, No. 3, 1976.
- 3) K. Slater, Comfort Properties of Textiles, Textile Progress, Vol. 9, No. 4, 1977
- 4) Y. Li, The Science of Clothing Comfort, Textile Progress, Vol. 31, No. 1 & 2, 2001
- 5) Patnaik et. al., Wetting and Wicking in Fibrous Materials, Textile Progress, Vol. 38, No. 1, 2008
- 6) M. Yoneda and S. Kawabata, Analysis of Transient Heat Conduction and its Application-Part I, J. Text. Mach. Soc. of Japan, Vol. 29, No. 4, 1983, 73.
- 7) Thermal and moisture transport in fibrous materials, edited by N. Pan and P. Gibson, The Textile Institute, Published by woodhead Publishing Limited, Cambridge, England, 2006
- 8) Quality control: Fabric comfort – V. K. Kothari.
- 9) NPTEL course on Science of Clothing Comfort by Apurba Das, IIT Delhi.

(b) Open source software and website:

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

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