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Science in Clothing Comfort

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There are many textbooks describing different aspects of clothing technology and sciences of human comfort. However, there are not many books giving a survey of the sciences of comfort and clothing technology in one volume. In this respect, this book would fulfill the need of undergraduate and postgraduate students who are studying various aspects of textiles and clothing and also the researchers who are working in the area of clothing comfort. The undergraduate and post graduate students of textiles, clothing and fashion or home science generally study about the basics of fibres, yarn formation, fabric formation, apparel production and their evaluation techniques. But the engineering of right type of garment/ clothing for any specific application is possible only when we understand the interrelationship between the clothing requirements and human comfort.

The text in this book describes the aspects of science in perceiving the comfort by the human being and the science and technology of clothing that deals with the comfort. The first chapter consists of the details of criteria for the selection of clothing, components of clothing comfort, human clothing interaction and scientific understanding of clothing comfort. The second chapter provides the information on the perception of clothing comfort by human sensory system and psycho-physics involved in the perception and assessment of comfort, psychological aspects of clothing comfort, etc. In third chapter, the sensory systems of human, interpretation of the signals by nerve and brain for each sensation related to comfort and details of mechanical and thermal receptors present in the skin are described. The fourth chapter consists of the detailed survey of aspects of tactile comfort, fabric parameters that affect the tactile sensation and fabric handle and evaluation. In fifth chapter, the thermo-regulation system in human body and through clothing system, effect of thermal distress, transient heat flow for warm-cool sensation and evaluation of fabrics for thermal characteristics are detailed. The sixth chapter describes the liquid water transfer through fabrics, evaluation of liquid water transfer, principles of moisture vapour transfer and its evaluation by various methods. The seventh chapter consists of the survey of the combined heat and mass transfer through textile materials and its evaluation. The last

chapter deals with the sciences of comfort with the size and fitness of garment.

In this book, not only the scientific and technical information, but also other related basic information at each level is given to understand the concepts clearly. References to original sources have also been given to follow the literature that will be useful for the readers. The undergraduate, postgraduate and research students from textile engineering, fashion technology, clothing and apparel technology, home science will be benefited from this text book. This book also provides the guidelines such as comfort level of the person at various activity levels and at various climatic conditions, etc. which are needed to produce the functional garments for various applications. So, this book would be also useful for the industries which are involved in the production of functional garments.

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It is hoped that the students, teachers and researchers will be able to get the idea of science behind the clothing comfort with the help of this book. There may be some shortcomings in the book and the authors welcome the comments from readers and these constructive comments will be useful in bringing out the second edition of the book.

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