

## Book Review

**Apparel Manufacturing Technology**, by T Karthik, P Ganesan and D Gopalakrishnan (CRC Press), 2017, pp. 472, price £ 127.00 & £ 88.90. [ISBN: 978-1-4987-6372-2]

The book “Apparel Manufacturing Technology” aims to provide a broad conceptual and theoretical perspective of the apparel manufacturing process starting from raw material selection to packaging and dispatch of goods. Further, engineering practices followed in the apparel industry for production planning and control, line balancing, implementation of industrial engineering concepts, merchandising activities and garment costing have been included, and these will serve as a foundation for apparel professionals.

It addresses the technical aspects in each segment of the garment manufacturing process along with quality aspects to be considered in each process. Garment engineering evaluates each process/operation of the total work content, and can reduce the work content and increase profitability by using innovative methods of construction and technology.

The book covers the production planning process, production balancing activities, application and industrial engineering concepts in garment engineering. Further, the merchandising activities and garment costing procedures deal with some practical examples.

While discussing the topic “An introduction to apparel Industry”, the authors described the structure of the garment industry including various departments, classification of garments, selection of fibres and their significance in apparel manufacturing, different fabric inspection systems along with their merits and demerits, and fabric characteristics for apparel manufacturing and their influence on sewing performance.

In dealing with “Pattern making”, the authors discussed the significance of body anatomy and body measurements on garment fitting. The various aspects related to garment pattern making such as pattern making tools, types of patterns, and principles of

pattern making are included. The pattern making methods, namely drafting, draping and flat pattern techniques are also included.

The authors, in chapter on “Fabric spreading and cutting”, discussed the various processes carried out in the cutting section. This includes marker making, spreading, cutting and preparation for sewing. The requirements of marker planning, its constraints, methods of spreading, cutting and equipment are also discussed.

The classification of sewing machines, functions of various parts of sewing machines and stitch forming mechanisms are presented in the chapter on “Sewing machines”.

While dealing with “Sewing thread and needles”, the authors have provided an insight into the various aspects related to the classification and selection of the sewing thread and needles for making garments and also, their influence on sewing performance.

The authors discussed the classification of seams and stitches along with their characteristics and various sewing defects in chapter on “Seams and stitches”. The authors have dealt with various kinds of sewing machine feed mechanisms and their applications. Special attachments for sewing machines along with their functions are also discussed. The authors have also provided pertinent information on different types of fusing, pressing and packaging methods used in apparel industries. The method of construction of fullness and yoke, construction and application of collars, plackets and pockets, sleeves and cuffs, respectively are also provided in different chapters of this book.

Various types of garment closures, their applications and various supporting materials used for construction of garments are also discussed in the chapter on “Apparel Accessories and supporting materials”. The authors have also described the “Production planning and control”, applicable in apparel manufacturing industries. Shipment orders, utilisation of operators, proper supplies of raw materials and machineries for each style and order are

also discussed. The authors have also dealt with the method of handling cutting orders and planning economic cutting lays, better utilisation of materials to improve the cutting process efficiencies along with roll planning and fabric grouping. The method of handling cutting orders and planning economic cutting lays, better utilisation of materials to improve the cutting process efficiencies along with roll planning and fabric grouping are also described in the book.

Authors have also given a brief introduction of the different operations for various garment styles and different control forms in production departments with their significance and break down. Plant loading and capacity planning with respect to line balancing, determination of machinery requirement, production capacity of the industry and operator efficiency are also discussed in this book.

The function of merchandising in retail and manufacturing industry as well as conceptualisation, development of raw materials, material sourcing for production, and dispatch of product to buyers are described. The various aspects related to merchandising activities are also detailed in this book. Basic information about costing, method of costing, pricing and determination of garment costing for various styles of garments are discussed in this book.

The book is primarily intended for textile technology, apparel/garment technology and fashion technology students in universities and colleges, researchers, industrialists and academicians, as well as professionals in the apparel and textile industries. Although this book will be quite useful for the students and professionals, it lacks the practical exposure viewpoint. For example, after every chapter, practical examples drawn from the garment industries, and appropriate case studies should have been included. This has been done only in the last chapter, where some practical examples of garment costing have been incorporated. Students would have benefitted much more if such case studies had been more widely included.

Moreover, some data, such as export figures of India vs other countries of the world, should have been presented in tabular form, and as bar charts, pie charts, etc for better explanation. Classification of textile raw materials according to end-uses for apparel industry related to menswear, womenswear and kidswear as well as according to seasons (for example spring/summer, autumn/winter, etc.) should have also been included. Similarly, many practical examples

could have been included along with figures/coloured photographs of woven fabrics (like seer sucker, gabardine, poplin, voile, crepe, chiffon, chino, oxford fabrics, etc.) and knitted fabrics (like T-shirts, polo shirts, single jersey, rib, interlock, pique fabrics, etc.) for the benefit of the students.

Another suggestion is that the contents of Chapter 1 should have been divided into 2 chapters, namely “An introduction to apparel industry: In Indian and global context” and “Basic raw material for apparel manufacturing”. The proposed chapter on “An introduction to Apparel Industry: In Indian and Global context” should have had more inputs on following:

The apparel industries as a whole, like distribution and share of Indian apparel industries in various parts of the country (like Delhi/NCR, Mumbai, Bangalore, Chennai, Kolkata, etc.), SWOT analysis of Indian apparel industry *vis-a-vis* global apparel industries, India’s position in the world market and Cumulative Annual Growth Rate(CAGR).

Various distribution channels of apparels which are to be manufactured, like buying houses (like Gap, WalMart, Marks & Spencer, etc.), retailers (Pantaloons, Westside, etc.), on-line agencies (FlipKart, Snapdeal, Amazon), design houses (Armani, Satya Paul, etc.)

About various apparel designers (In India and abroad), boutiques, coutures, etc.

In the proposed chapter on “Basic raw material for apparel manufacturing”, the authors could have mentioned the different types of raw materials used in the apparel manufacturing industries, like textile fabrics (woven, knitted, nonwoven, braided, etc.), leather and so on. Also classification of raw materials should have been shown in the form of flow diagrams/tabular form.

The type of fibres required for menswear, womenswear, kidswear should have been included according to the seasons like spring/summer, fall/winter, etc. Selection of fibres used in various woven garments/knitted garments should have been incorporated.

In the topic of yarns, it is wrongly mentioned that fibres are short lengths varying from ½ to 20 inch. The length of a fibre depends on the natural type and source. The above statement should have been included in the Chapter 1.4.1. Similarly fibres for high-tech garments should have been mentioned. Non-textile raw material like leather for apparel manufacturing should have been discussed. Also, there

is no mention about care labelling. This is also a very important topic which ought to have been included.

On page 26, Table 1.2, the calculation of penalty points for each defect is wrongly mentioned. For example, 4 defects up to 3 inch length is calculated as  $5 \times 1 = 5$  points instead of  $4 \times 1 = 4$  points, 3 defects from 3 inch to 6 inch length are calculated as  $2 \times 2 = 4$  points instead of  $3 \times 2 = 6$  points, 2 defects from 6 inch to 9 inch length are calculated as  $4 \times 3 = 12$  points instead of  $2 \times 3 = 6$  points, 1 defect over 9 inch length is calculated as  $2 \times 4 = 8$  points instead of  $1 \times 4 = 4$  points, Total defect points are mentioned as 33 points instead of 20 points. Accordingly, points/100 square yards are wrongly calculated.

Moreover, there is no mention about textile and apparel testing and evaluation standards, quality control and quality assurance in apparel, care labelling. These are very important topics which must be included.

Similarly, modern developments or advancements of the machines, processes and future trends are not mentioned. For example, modern inspection machines/systems, BMS vision Cyclops, Zellweger Uster Fabriscan, Shelton WebSPECTOR should have been covered.

Inspection system for fabric is mentioned, whereas other raw materials like trims and accessories are missing. Although pattern making tools and equipment are mentioned, tools for sewing/stitching are missing in this book.

However, it must be admitted that the book is quite exhaustive for such a broad subject.

K N Chatterjee  
Head, FAE Department  
The Technological Institute of Textile & Sciences  
Bhiwani 127 021