

Kumar, L. A., & Vigneswaran, C. (2015). *Electronics in Textiles and Clothing: Design, Products and Applications*. Boca Raton, FL: CRC Press.

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This textbook covers fabric production, design of integrated circuits, and product development with respect to electronics information. Seven chapters cover (1) Wearable Electronics; (2) Textile Fabric Development for Wearable Electronics; (3) Design of Circuits and Integration into Wearable Fabrics; (4) Product Development Using Wearable Electronics; (5) Software Development for Wearable Electronics; (6) Design and Development of Flexible Solar Cell's Integration in Clothing; and (7) Garment-Integrated Wearable Electronic Products. The book's aim is to deal with the fundamentals of electronics and their applications in textiles and clothing product development.

In the last two decades, many electronic applications have been adopted by designers of wearable art, functional clothing, or other types of garment design. The book makes use of actual cases and studies. The authors address the following:

- fabric production, the design of integrated circuits, and product development with respect to electronics;
- their actual projects, including field work and designing electronic circuits and their possibilities for signals and problems;
- guidelines for understanding development of wearable electronics products, especially in relation to electronic circuit design;
- topics such as optical fiber/copper conductive fiber, solar tents, smart shirts, and teleintimation (electronic with sensors) garments;
- product applications such as for defense, medical and healthcare monitoring devices, including electrical circuits and signal outputs; and
- use of electronics in textiles and clothing, covering the fundamentals of electronics and their applications in wearable devices.

Emphasis is placed on the interface between electronics and textile materials, including methods and techniques used in industrial practice and industrial applications based on functional properties and end users in sectors such as defense, medicine, health monitoring, and security. The textile and fibers used for wearable electronics are outlined in relation to different yarn types and fabric production techniques and modifications needed on conventional machines for developing fabrics using specialty yarns. Ways to integrate textile materials with electronics for communicating or signal transferring applications are explored.

The book's coverage also includes problems faced as well as solutions tried during production processes. Information about sensors, specialty yarns, Body Sensor Networks (BSN), and flexible solar tents used for power generation was presented. The authors conclude with discussion of the development of fabric-integrated wearable electronic products for use in mobile health care systems, a smart cloth for ambulatory remote monitoring, an electronic jerkin, and heating and pneumatic gloves. Referring to the authors' projects and field work, a practical approach is offered to the issues involved in designing electronic circuits and their possibilities for signals, giving the reader an understanding of problems that can occur when executing the

work. Additionally, the future scope of e-textiles using conductive materials for medical, healthcare textile product development, and safety aspects are described.

This is a useful text for understanding electronic item design and adoption of materials. In some places the reader can be frustrated by graphics that are too small or not clear enough to effectively illustrate what is needed. However, its value is in demonstrating the contributions of wearable art's and functional clothing's electronic applications and providing readers with significant knowledge and experiences in the creation of smart textile products.