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# Biotextiles as medical implants

Edited by Martin W. King, Bhupender S. Gupta  
and Robert Guidoin



The Textile Institute

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# Biotextiles as medical implants

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The Textile Institute is a unique organisation in textiles, clothing and footwear. Incorporated in England by a Royal Charter granted in 1925, the Institute has individual and corporate members in over 90 countries. The aim of the Institute is to facilitate learning, recognise achievement, reward excellence and disseminate information within the global textiles, clothing and footwear industries.

Historically, The Textile Institute has published books of interest to its members and the textile industry. To maintain this policy, the Institute has entered into partnership with Woodhead Publishing Limited to ensure that Institute members and the textile industry continue to have access to high calibre titles on textile science and technology.

Most Woodhead titles on textiles are now published in collaboration with The Textile Institute. Through this arrangement, the Institute provides an Editorial Board which advises Woodhead on appropriate titles for future publication and suggests possible editors and authors for these books. Each book published under this arrangement carries the Institute's logo.

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A list of Woodhead books on textile science and technology, most of which have been published in collaboration with The Textile Institute, can be found towards the end of the contents pages.

We are always happy to receive suggestions for new books from potential editors. To enquire about contributing to our Textiles series, please send your name, contact address and details of the topic/s you are interested in to [francis.dodds@woodheadpublishing.com](mailto:francis.dodds@woodheadpublishing.com). We look forward to hearing from you.

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The inspiration for this book about implantable biotextiles originated over 10 years ago when the faculty of the College of Textiles, North Carolina State University, proposed to develop a new undergraduate curriculum that instructed students on all major aspects of the design, manufacture, finishing, characterization and use of textile-based implantable devices. At the time, some existing titles emphasized the use of medical textiles primarily in terms of protective apparel and external support devices. No dedicated quality textbook that focused comprehensively on the design, development and use of implantable biotextile products was available. Students in biotextile and medical textile courses therefore had to manage their studies with the aid of conference proceedings, patents and journal articles addressing the various subject matter areas. While these are important and valuable resources, students need a well-written and systematically organized text for effective learning. We believe that this book will satisfy the current need for a college-level textbook in the area of biotextile implantable devices in many curricula around the world.

The book is comprehensive. It addresses both the materials aspects and the clinical needs of developing a biotextile product. Major aspects, including conception and design, the process of materials selection, the textile technologies of fabrication and finishing, the evaluation of their performance properties, and the regulatory conditions which these high value-added products must meet, are all covered. Courses in biotextiles are being introduced in undergraduate and graduate programs at many different colleges and universities around the world. And because the field is interdisciplinary, full- and part-time students are enrolling from widely different backgrounds, such as materials engineering, polymer chemistry, fiber and textile science, textile technology, business management, and life sciences and medicine. The growing need for a textbook is self-evident; we feel that this book will serve the immediate need. In addition to serving as a text, we also feel that this book will be a valuable resource for (1) engineers and regulatory officers in medical device companies involved in developing and evaluating new biotextile products, (2) basic research scientists in microbiology, biochemistry and immunology, (3) practising clinicians in surgery,