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Titolo	Surgical Tools and Medical Devices // edited by Waqar Ahmed, Mark J. Jackson
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ISBN	3-319-33489-1
Edizione	[2nd ed. 2016.]
Descrizione fisica	1 online resource (697 p.)
Disciplina	620
Soggetti	Manufactures Nanotechnology Biomedical engineering Mechanical engineering Manufacturing, Machines, Tools, Processes Nanotechnology and Microengineering Biomedical Engineering and Bioengineering Mechanical Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Atomic Scale Machining of Surfaces -- Anodization: A Promising Nano Modification Technique of Titanium-based Implants for Orthopedic Applications -- Titanium Dioxide Coatings in Medical Device Applications -- Effect of Shape and Surface Modification on the Corrosion of Biomedical Nitinol Wires Exposed to Saline Solution -- Cardiovascular Interventional and Implantable Devices -- Surface Engineering Artificial Heart Valves -- Diamond Surgical Tools -- Dental Tool Technology -- Nanocrystalline Diamond: Deposition Routes and Clinical Applications -- Environmental, Engineering Controls and Monitoring in Medical Device Manufacturing -- Biomaterial-Cell-Tissue Interactions in Surface Engineered Carbon-based Biomedical Implants and Devices -- Applications of Carbon Nanotubes in Bio-Nanotechnology -- Bonelike Graft for Regenerative Bone Applications -- Machining Cancellous Bone Prior to Prosthetic Implementation --

Titanium Alloys Applications in Medicine -- Nano and Microcoatings for Medical Devices -- Computational Modeling of Medical Devices in Flow Systems -- Graphene-based Materials for the Delivery of Anticancer Drugs -- 3D Printing of Medicines onto Various Substrate Materials -- Design Characteristics of Inhaler Devices Used for Pulmonary Delivery of Medical Aerosols -- Orthopaedic Devices and Implants: A Clinical Perspective -- Surface Engineered Implants in Anterior Cruciate Ligament Reconstruction of the Knee -- Computational Modeling and Analysis of Flow in Blood Vessels: With and Without Couplers -- Biomechanics and Evidence Surrounding Fixation of the Mandible -- Titanium and Titanium Alloys in Medical Applications.

Sommario/riassunto

This new edition presents information and knowledge on the field of biomedical devices and surgical tools. The authors look at the interactions between nanotechnology, nanomaterials, design, modeling, and tools for surgical and dental applications, as well as how nanostructured surfaces can be created for the purposes of improving cell adhesion between medical devices and the human body. Each original chapter is revised in this second edition and describes developments in coatings for heart valves, stents, hip and knee joints, cardiovascular devices, orthodontic applications, and regenerative materials such as bone substitutes. There are also 8 new chapters that address: Microvascular anastomoses Inhaler devices used for pulmonary delivery of medical aerosols Surface modification of interference screws Biomechanics of the mandible (a detailed case study) Safety and medical devices The synthesis of nanostructured material Delivery of anticancer molecules using carbon nanotubes Nano and micro coatings for medical devices This book is appropriate for engineers, material scientists, chemists, physicists, biologists, medical and dental professionals with an interest in biomedical devices and tools, and researchers in the same fields.
