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Mechanical Design: Theory and Applications, Third Edition introduces the design and selection of common mechanical engineering components and machine elements, hence providing the foundational "building blocks" engineers need to practice their art. In this book, readers will learn how to develop detailed mechanical design skills in the areas of bearings, shafts, gears, seals, belt and chain drives, clutches and brakes, and springs and fasteners. Where standard components are available from manufacturers, the steps necessary for their specification and selection are thoroughly developed. Descriptive and illustrative information is used to introduce principles, individual components, and the detailed methods and calculations that are necessary to specify and design or select a component. As well as thorough descriptions of methodologies, this book also provides a wealth of valuable reference information on codes and regulations. Presents new material on key topics, including actuators for robotics, alternative design methodologies, and practical engineering tolerancing. Clearly explains best practice for design decision-making. Provides end-of-chapter case studies that tie theory and methods together. Includes up-to-date references on all standards relevant to mechanical design, including ASNI, ASME, BSI, AGMA, DIN and ISO. This book presents comprehensive reviews on the latest developments of nanotechnologies to detect and remove pollutants in water, air and food. Polymer nanocomposites, nanoparticles from microbes and the application of nanotechnologies for desalination and agriculture are also discussed. Pollution of water and air by contaminants and diseases is a major health issue leading globally to millions of deaths yearly according to the World Health Organization. Such issue requires advanced methods to clean environmental media.

In December 2019, the world witnessed the occurrence of a new coronavirus to humanity. The disease spread quickly and became known as a pandemic globally, affecting both society and the health care system, both the elderly and young groups of people, and both the men's and women's groups. It was a universal challenge that immediately caused a surge in scientific research. Be a part of a world rising in fighting against the pandemic, the Coronavirus Disease - COVID-19 was depicted in the early days of the pandemic, but updated by more than 200 scientists and clinicians to include many facets of this new infectious pandemic, including i, characteristics, ecology, and evolution of coronaviruses; ii, epidemiology, genetics, and pathogenesis (immune responses and oxidative stress) of the disease; iii, diagnosis, prognosis, and clinical manifestations of the disease in pediatrics, geriatrics, pregnant women, and neonates; iv, challenges of co-occurring the disease with tropical infections, cardiovascular diseases, hypertension, and cancer and to the settings of dentistry, hematology, ophthalmology, and pharmacy; v, transmission, prevention, and potential treatments, ranging from supportive ventilator support and nutrition therapy to potential virus- and host-based therapies, immune-based therapies, photobiomodulation, antiviral photodynamic therapy, and vaccines; vi, the resulting consequences on social lives, mental health, education, tourism industry and economy; and vii, multimodal approaches to solve the problem by bioinformatic methods, innovation and ingenuity, globalization, social and scientific networking, interdisciplinary approaches, and art integration. We are approaching December 2020 and the still presence of COVID-19,

asking us to call it COVID (without 19).

UNE-EN ISO 14405-1:2018 Geometrical Product Specifications (gps), Dimensional Tolerancing. Linear sizes (iso 14405-1:2016). Dimensiones lineales, (iso 14405-1:2016) DS/EN ISO 14405-1:2016 Technical Drawing for Product Design Mastering ISO GPS and ASME GD&T Springer Nature

Electrical Machines covers the theoretical and mathematical concepts of the most commonly used electrical machines in industry and home appliances. This book presents the practical usage and functioning of electrical machines in a way which is easily understandable by the readers. It provides a different approach from other books and presents a step by step procedure on how to start and run the machine on various load, operating, and testing conditions and connections. It also presents a complete set of readings, calculations, and graphs/plots performed on standard electrical machines with rated voltage and current. Each chapter contains answers to questions related to particular machines and testing conditions/operations, solutions to numerical problems, and some exercise problems for practice.

Überdurchschnittlich viele Studierende in den ingenieurwissenschaftlichen Fächern brechen ihr Studium ab, am Arbeitsmarkt sind Ingenieure dagegen Mangelware. Umso lohnender ist da die Investition in eine zeitgemäße Didaktik. Unter der Berücksichtigung der zunehmenden Komplexität durch die Digitalisierung in den Ingenieurwissenschaften und am Arbeitsplatz zeigt das Buch, wie Lehrkräfte die Inhalte des Ingenieurstudiums und der technischen Lehre handlungsorientiert vermitteln können. Das Buch ist in zwei Teile gegliedert. Im ersten Teil präsentieren die Autoren die didaktischen Grundlagen. Sie erläutern grundlegende pädagogische Ansätze wie Kompetenz- und Handlungsorientierung im Unterricht und die Bedeutung von Lehr- und Lernzielen mit speziellem Fokus auf der Didaktik technischer Fächer. Daneben verknüpfen sie die theoretischen Grundlagen wichtiger technischer Fachgebiete mit den praktischen Anwendungen der unterschiedlichen Branchen. Der zweite Teil bietet einen didaktisch durchdachten Lehr- und Übungskatalog mit einem breiten Spektrum an Methoden, der zur innovativen Lehrstoffvermittlung anregt. Am Beispiel der ingenieurwissenschaftlichen Grundlagenfächer bereiten die Autoren die technischen Inhalte fachlich auf und skizzieren auf der Basis dieses Grundlagenwissens einen möglichen Kompetenzerwerb. Mit Hilfe dieses Katalogs können die Leser adäquate Lehr- und Lernmethoden auswählen. Mit ihrem Buch wollen die Autoren Lust machen auf eine neue, innovative Art der technischen Lehre. Ein handlungsorientiertes pädagogisches Handbuch für Dozenten an technischen Universitäten, Hochschulen und Technischen Fachschulen, das ergänzend zur technischen Fachliteratur eingesetzt werden kann.

This proceeding is a compilation of selected papers from the 8th International Workshop of Advanced Manufacturing and Automation (IWAMA 2018), held in Changzhou, China on September 25 - 26, 2018. Most of the topics are focusing on novel techniques for manufacturing and automation in Industry 4.0 and smart factory. These contributions are vital for maintaining and improving economic development and quality of life. The proceeding will assist academic researchers and industrial engineers to implement the concepts and theories of Industry 4.0 in industrial practice, in order to effectively respond to the challenges posed by the 4th industrial revolution and smart factory.

Jede industrielle Herstellung technischer Produkte ist mit Schwankungen behaftet, welche Abweichungen von den Sollmaßen verursachen. Diese Abweichungen dürfen aber nicht die

Produktqualität beeinflussen, weshalb alle Maß- und Geometrietoleranzen funktions-, herstell- und montagegerecht gewählt werden müssen. In diesem Buch wird eine neuartige Methodik zur Ermittlung sinnvoller Toleranzen vorgestellt.

Presents a theory of dimensioning synthesized from several areas of geometry, starting from the works of Euclid and culminating in some recent results in classification of continuous symmetry groups. Features numerous examples and illustrations for better understanding of concepts.

This book focuses on the study of the remarkable new source of geographic information that has become available in the form of user-generated content accessible over the Internet through mobile and Web applications. The exploitation, integration and application of these sources, termed volunteered geographic information (VGI) or crowdsourced geographic information (CGI), offer scientists an unprecedented opportunity to conduct research on a variety of topics at multiple scales and for diversified objectives. The Handbook is organized in five parts, addressing the fundamental questions: What motivates citizens to provide such information in the public domain, and what factors govern/predict its validity? What methods might be used to validate such information? Can VGI be framed within the larger domain of sensor networks, in which inert and static sensors are replaced or combined by intelligent and mobile humans equipped with sensing devices? What limitations are imposed on VGI by differential access to broadband Internet, mobile phones, and other communication technologies, and by concerns over privacy? How do VGI and crowdsourcing enable innovation applications to benefit human society? Chapters examine how crowdsourcing techniques and methods, and the VGI phenomenon, have motivated a multidisciplinary research community to identify both fields of applications and quality criteria depending on the use of VGI. Besides harvesting tools and storage of these data, research has paid remarkable attention to these information resources, in an age when information and participation is one of the most important drivers of development. The collection opens questions and points to new research directions in addition to the findings that each of the authors demonstrates. Despite rapid progress in VGI research, this Handbook also shows that there are technical, social, political and methodological challenges that require further studies and research.

Covering key topics in the field such as technological innovation, human-centered sustainable engineering and manufacturing, and manufacture at a global scale in a virtual world, this book addresses both advanced techniques and industrial applications of key research in interactive design and manufacturing. Featuring the full papers presented at the 2014 Joint Conference on Mechanical Design Engineering and Advanced Manufacturing, which took place in June 2014 in Toulouse, France, it presents recent research and industrial success stories related to implementing interactive design and manufacturing solutions.

What can one discover through the study of medieval Islamic coins? It appears that the regular gold dinars and silver dirhams issued by the Ikhshidid rulers of Egypt and Palestine (935-69) followed a series of understood but unwritten rules. As the first part of this book reveals, these norms involved whose names could appear on the regular currency, where the names could be placed (based upon a strict hierarchical order), and even which parts of a Muslim name could be included. The founder of the dynasty, Muhammad ibn Tughj, could use the honorific al-Ikhshid; his eldest son and successor could use his teknonym Abu al-Qasim; his brother, the third ruler, could use only his name Ali; and the eunuch Kafur, effective ruler of Egypt for over twenty years, could never inscribe his name on the regular coinage. At the same time, each one of these rulers was named in the Friday sermon and most had their teknonym inscribed on textiles. Presentation coins, the equivalent of modern commemorative pieces, could break all these rules, and a wide variety of titles appeared, as well as a series of coins with human representation. The second half of the book is a catalogue of over 1,200 specimens, enabling curators, collectors, and dealers to identify coins in their own collections and their relative



Zusammenhang dar, leistet Hilfestellung bei der Interpretation wesentlicher Normen und der Nutzung von Tolerierungsprinzipien und zeigt die Anwendung anhand von konkreten Beispielen, so dass die gewünschte Bauteilfunktionalität letztlich auch gewährleistet ist. Durch die Darlegung des DIN-ISO- und des ASME-Konzeptes auch in der CAD-Konstruktion ist das Buch inhaltlich hoch aktuell. Prof. em. Dr.-Ing. Bernd Klein hat 10 Jahre in der Industrie verbracht und 28 Jahre das Fachgebiet LeichtbauKonstruktion an der Universität Kassel geleitet. Schwerpunkte seiner Tätigkeit sind FEM, Betriebsfestigkeit, konstruktiver Leichtbau und Innovationsmanagement.

Danas se u industriji susreću različiti koncepti koji pomažu osiguranje kvaliteta, kao što je totalno upravljanje kvalitetom (TQM), kompjuterski integrisana proizvodnja (CIM), statistički proces kontrole (SPC) i drugi, bez kojih nema moderne proizvodnje.

Upravljanje proizvodnjom ne zasniva se više na vlastitim iskustvima i greškama, nego na organiziranom i planiranom sistemu kvaliteta. Prvi korak u tom cilju je postizanje tehničkog kvaliteta proizvoda, smanjenje grešaka i odstupanja od zadanih tolerancija. Mjerenje i kontrola dimenzionalnih karakteristika proizvoda predstavlja tehnički dio kvaliteta bez kojeg nema zadovoljstva kupca niti uspješne prodaje. Principi toleriranja mjera, oblika i položaja predstavljaju uslov koji se mora ostvariti da bi se proizvod napravio sa najmanjom mogućom greškom. Proces proizvodnje i mjerna oprema moraju biti sposobni odgovoriti tom zadatku. Proces proizvodnje i kontrola geometrijskih karakteristika proizvoda međusobno su povezani, a kontrole i mjerenja provode se u svim fazama proizvodnog procesa. Razvoj mjernih i kontrolnih sredstava treba vezati s tehnološkim napretkom i razvojem novih metoda mjerenja karakteristika proizvoda.

Nove tehnologije mjerenja geometrijskih karakteristika proizvoda, kao što su koordinatna i laserska mjerna sredstva, koriste se za postizanje tačnosti mjerenja koju nije moguće postići klasičnim mjernim sredstvima, koja se još uvijek najčešće koriste. Strategije i principi mjerenja, te standardi koji to propisuju, neophodni su uslovi za ostvarenje kvaliteta proizvoda. Korištenje nove proizvodne i mjerne opreme za izradu kvalitetnijeg proizvoda zahtijeva nova znanja, ali i poznavanje temeljnih principa specifikacije, mjerenja i kontrole karakteristika proizvoda. Knjiga u kojoj su opisani principi i postupci ispitivanja geometrijskih karakteristika proizvoda namijenjena je inženjerima koji se u svakodnevnoj praksi bave kontrolom dimenzionalnih karakteristika proizvoda, a posebno studentima koji studiraju na mašinskim i sličnim fakultetima koji u programu imaju predmete sličnog sadržaja kao ova knjiga. Autori, svaki u svom dijelu, učestvuju u nastavnom procesu na predmetima koji obuhvataju materiju opisanu u ovoj knjizi ili dugi niz godina rade u proizvodnji i primjenjuju metode i principe kontrole i mjerenja opisane u ovoj knjizi.

Die Vorzüge dieses Lehrbuches: Von den Handmessmitteln bis zur Mikromesstechnik, die optische Mess- und Rauheitsmesstechnik sowie relevante Teile des QM werden mit aussagekräftigen Bildern praxisnah dargestellt – ein ausführliches Normenverzeichnis lässt schnell gültige Standards finden – Links zu allen wichtigen Metrologie-, Normen- und Akkreditierungsinstitutionen – ein ausführliches zweisprachiges

Sachwortverzeichnis ermöglicht ein schnelles Auffinden der gesuchten Begriffe sowie die Korrespondenz mit englischsprachigen Kollegen – besonders gut für eine praxisgerechte Ausbildung an Hochschulen und Weiterbildungsinstitutionen geeignet – für jeden Fertigungsbetrieb, in Konstruktion und Entwicklung sowie im Messraum und Qualitätsmanagement ein zuverlässiges Nachschlagewerk und effizienter Ratgeber.

Die vorliegende Auflage wurde überarbeitet und um die Kapitel Messunsicherheit bei

KMGs, Werkzeugmaschinenüberwachung und Foucault-Laser erweitert.

This book presents the proceedings of the 3rd International Conference on the Industry 4.0 Model for Advanced Manufacturing (AMP 2018), held in Belgrade, Serbia, on 5–7 June 2018, the latest in a series of high-level conferences that brings together experts from academia and industry to exchange knowledge, ideas, experiences, research findings, and information in the field of manufacturing. The book addresses a wide range of topics, including, for example, design of smart and intelligent products, developments in CAD/CAM technologies, rapid prototyping and reverse engineering, multistage manufacturing processes, manufacturing automation in the Industry 4.0 model, cloud-based products, and cyber-physical and reconfigurable manufacturing systems. By providing updates on key issues and recent advances in manufacturing engineering and technologies, it aids the transfer of vital knowledge to the next generation of academics and practitioners. It appeals to anyone working or conducting research in this rapidly evolving field.

This book is intended for students, academics, designers, process engineers and CMM operators, and presents the ISO GPS and the ASME GD&T rules and concepts. The Geometric Product Specification (GPS) and Geometrical Dimensioning and Tolerancing (GD&T) languages are in fact the most powerful tools available to link the perfect geometrical world of models and drawings to the imperfect world of manufactured parts and assemblies. The topics include a complete description of all the ISO GPS terminology, datum systems, MMR and LMR requirements, inspection, and gauging principles. Moreover, the differences between ISO GPS and the American ASME Y14.5 standards are shown as a guide and reference to help in the interpretation of drawings of the most common dimensioning and tolerancing specifications. The book may be used for engineering courses and for professional grade programmes, and it has been designed to cover the fundamental geometric tolerancing applications as well as the more advanced ones. Academics and professionals alike will find it to be an excellent teaching and research tool, as well as an easy-to-use guide.

Reflecting the rapid advances in new materials development, this work offers up-to-date information on the properties and applications of various classes of metals, polymers, ceramics and composites. It aims to simplify the materials selection process and show how to lower materials and manufacturing costs, drawing on such sources as vendor supplied and quality control test data.

This book gathers the proceedings of the 5th International Conference on the Industry 4.0 Model for Advanced Manufacturing (AMP 2020), held in Belgrade, Serbia, on 1–4 June 2020. The event marks the latest in a series of high-level conferences that bring together experts from academia and industry to exchange knowledge, ideas, experiences, research findings, and information in the field of manufacturing. The book addresses a wide range of topics, including: design of smart and intelligent products, developments in CAD/CAM technologies, rapid prototyping and reverse engineering, multistage manufacturing processes, manufacturing automation in the Industry 4.0 model, cloud-based products, and cyber-physical and reconfigurable manufacturing systems. By providing updates on key issues and highlighting recent advances in manufacturing engineering and technologies, the book supports the transfer of vital knowledge to the next generation of academics and practitioners. Further, it will appeal to anyone working or conducting research in this rapidly evolving field.

Nel campo tecnico-scientifico molte decisioni sono supportate da misurazioni. Ma per poter decidere correttamente è importante assegnare ai risultati di misura il loro effettivo significato. Ciò è soprattutto importante, ed espressamente richiesto, quando si opera in Sistemi Qualità. In tal caso la gestione delle misure e prove deve essere rigorosa, e può trovare un concreto supporto negli argomenti qui trattati, per l'attenzione posta a curare insieme la correttezza sostanziale e l'eliminazione di vincoli inutili. Giulio Barbato, Alessandro Germak e Gianfranco Genta sono docenti di "Statistica sperimentale e Misure Meccaniche" ed "Experimental Statistics and Mechanical Measurement" presso il Politecnico di Torino.

DUBBEL - Taschenbuch für den Maschinenbau – erscheint in einer neu bearbeiteten und aktualisierten 25. Auflage. Das Standardwerk der Ingenieure in Studium und Beruf mit den Schwerpunkten „Allgemeiner Maschinenbau“ sowie „Verfahrens- und Systemtechnik“ ist das erforderliche Basis- und Detailwissen des Maschinenbaus und garantiert die Dokumentation des aktuellen Stands der Technik. Dieses etablierte Referenzwerk mit „Norm-Charakter“ überzeugt durch - detaillierte Konstruktionszeichnungen - Tabellen und Diagramme mit quantitativen Angaben - Berechnungsverfahren - ein umfangreiches Literaturverzeichnis. Für die 25. Auflage wurden alle Kapitel intensiv bearbeitet und auf den aktuellen Stand von Wissenschaft und Technik gebracht.

Insbesondere hervorzuheben sind hierbei die fertigungstechnischen Kapitel; die Kapitel Regelungstechnik und Mechatronik wurden gemeinsam neu strukturiert. Das Kapitel Grundlagen der Konstruktionstechnik wurde zu Grundlagen der Produktentwicklung erweitert sowie um das Toleranzmanagement und die Entwicklung varianter Produkte ergänzt. Das Kapitel Energietechnik ist komplett überarbeitet, die Kapitel Werkstofftechnik und Maschinendynamik sind umstrukturiert und überarbeitet, und das Kapitel Biomedizinische Technik ist nun ein eigenes Kapitel. Der Zugang zur MDESIGN Formelsammlung Dubbel Edition ist weiterhin gewährleistet und bietet einen echten Mehrwert.

Viele Anwender tun sich schwer mit Kunststoffen, weil sie deren Verhalten nicht richtig einschätzen können. Viele Faktoren wirken sich auf die Belastbarkeit sowie die Maß- und Geometriehaltigkeit aus. Das Buch zeigt die Zusammenhänge auf, wobei der besondere Fokus auf den Maß- und Winkelveränderungen sowie den Form- und Lageveränderungen am Produkt liegt. Die gezeigten Bemaßungs- und Tolerierungsfälle berücksichtigen den aktuellen Stand des ISO-GPS-Normungssystems und sind daher international verständlich.

This conference proceeding presents contributions to the 59th International Conference of Machine Design (ICMD 2018), organized by the University of Žilina, Faculty of Mechanical Engineering, Department of Design and Mechanical Elements. Discussing innovative solutions applied in engineering, the latest research and developments, and guidance on improving the quality of university teaching, it covers a range of topics, including: machine design and optimization

engineering analysis tribology and nanotechnology additive technologies hydraulics and fluid mechanisms modern materials and technology biomechanics biomimicry; and innovation

Protein homeostasis, or “Proteostasis”, lies at the heart of human health and disease. From the folding of single polypeptide chains into functional proteins, to the regulation of intracellular signaling pathways, to the secreted signals that coordinate cells in tissues and throughout the body, the proteostasis network operates to support cell health and physiological fitness. However, cancer cells also hijack the proteostasis network and many of these same processes to sustain the growth and spread of tumors. The chapters in this book are written by world experts in the many facets of the proteostasis network. They describe cutting-edge insights into the structure and function of the major chaperone and degradation systems in healthy cells and how these systems are co-opted in cancer cells and the cells of the tumor microenvironment. The chapters also cover therapeutic interventions such as the FDA-approved proteasome inhibitors Velcade and Kryptolis as well as other therapies currently under clinical investigation to disarm the ability of the proteostasis network to support malignancy. This compendium is the first of its kind and aims to serve as a reference manual for active investigators and a primer for newcomers to the field. This book is dedicated to the memory of Susan Lindquist, a pioneer of the proteostasis field and a champion of the power of basic scientific inquiry to unlock the mechanisms of human disease. The chapter “Reflections and Outlook on Targeting HSP90, HSP70 and HSF1 in Cancer: A Personal Perspective” is available open access under a Creative Commons Attribution 4.0 International License via [link.springer.com](http://link.springer.com).

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