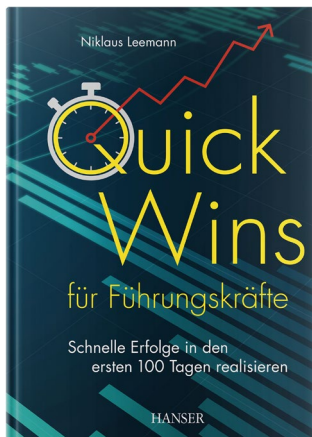Hanser New Titles

Business
IT
Engineering

July – December 2024

Quick wins for managers

Realize quick successes in the first 100 days

ISBN: **978-3-446-48187-9**

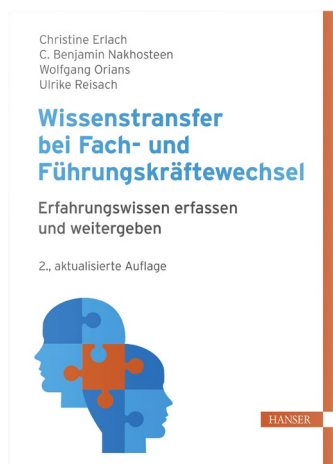200 **pages**

Publication date: **November 2024**

Achieving success in the short term

One of the tasks of every manager is to implement the corporate strategy. However, this is a rather long-term undertaking and short-term successes are essential, especially in a new position. Quick wins are optimizations that can be achieved quickly and without too much effort. These quick wins create trust, keep stakeholders on board and help to strengthen your own position. They give the manager "breathing space" and thus also support the implementation of the long-term strategy.

This book shows the range of possible quick wins and how they can best be realized in a concise, clear and consistently practice-oriented manner. All quick wins are presented in a standardized way, and step by step it is shown how these quick wins can be achieved, what needs to be considered and where stumbling blocks are hidden. Many examples, tips and directly applicable work aids facilitate the realization.
 - Realize 25 quick wins
- Giving yourself "breathing space" with quick wins
- Recognize and use potential
- With concrete implementation instructions
- With many examples and tips
- With work aids for immediate application

Niklaus Leemann is a strategy consultant for the top management of well-known companies. His work focuses on the long-term strategic development of these companies. His consulting focus is on corporate and business area strategy, business models, organizational development, reorganization and transformation. His international clientele ranges from large SMEs to listed corporations in various industries. He holds a doctorate in economics from the HHL Leipzig Graduate School of Management and studied at the University of St. Gallen in Switzerland and Nanyang Business School in Singapore. He has written books and articles on strategy, transformation and leadership and is a guest lecturer on strategic management.

Christine Erlach
C. Benjamin Nakhosteen
Wolfgang Orians
Ulrike Reisach

Wissenstransfer bei Fach- und Führungskräftewechsel

Erfahrungswissen erfassen und weitergeben

2., aktualisierte Auflage

Knowledge transfer for specialist and management changes

Capturing and passing on experience

ISBN: 978-3-446-47799-5

2nd, updated edition

300 pages

Publication date: **November 2024**

Identify, record and pass on company-relevant knowledge

This book shows how you can avoid knowledge loss in your company and how you can identify, record and pass on company-relevant knowledge - even if it is implicit knowledge, i.e. knowledge that is not available in written form. The authors explain the special features of experiential knowledge and present tried and tested methods of knowledge transfer as well as a process-oriented procedure model. Based on many years of practical experience, they provide tips for implementation and impulses for the design of personnel management and corporate culture.

- Practice-oriented presentation and tried-and-tested solutions
- With case studies and expert interviews
- Scientifically sound and clear at the same time

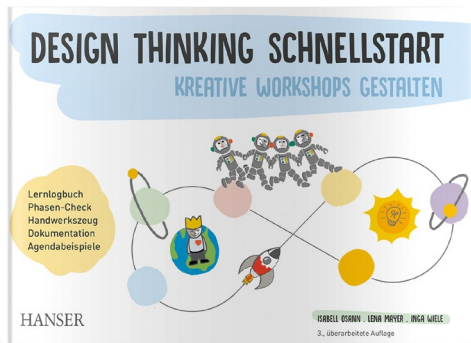"The authors deserve credit for highlighting the importance of communication for knowledge transfer."
Prof. Dr. Klaus Kocks, communications consultant and former board member at Volkswagen

"A book that every knowledge manager should have on their desk."
Dr. Angelika Mittelmann, specialist responsible for knowledge management at voestalpine Stahl GmbH

"An excellent tool for successfully confronting demographic change."
Thomas Riegler, Software Consultant, VDMA - German Engineering Federation

The Design Thinking Quick Start Guide
A 6-Step Process for Generating and Implementing Creative Solutions
ISBN: 978-3-446-48087-2
3rd, revised edition
160 pages
Publication date: **September 2024**

1st edition world rights sold to Wiley UK

A brief, beautiful introduction to Design Thinking that inspires business creativity and innovative solutions

The Design Thinking Quick Start Guide: A 6-Step Process for Generating and Implementing Creative Solutionsshows you how you and your team can become more creative. This book presents methods you can use to innovate playfully and enjoyably. The Design Thinking Quick Start Guide is full of practical tools and activities, like the 6-3-5 method of brainstorming, to help you and your team get creative. For each of the six steps in the design thinking process, the authors offer two warm-ups that get teams ready to contribute and arrive at innovative solutions.
- Spur innovation with checklists for brainstorming and implementation
-Learn how to generate new ideas
-Lead your team in a proven process for doing creative work
Whether you're new to design thinking or experienced, the clearly outlined steps in this guide will inspire you to create and implement great ideas.

A book that invites you to take off. For me, Quick Start is an extremely creative guide that encourages us to take action, shape ideas and not shy away from the major challenges of our time."
Gina Meininger, Squad Lead Software Development at Nexplore, HOCHTIEF AG

"This book is ideal for innovation creators. It has a compact format with a logical and visually appealing structure, perfect for practitioners who want to get started right away. It provides all the key information at a glance and allows for in-depth study with additional resources."
Michael-Georg Schmidt, Head of Innovation Excellence, BASF SE

"The concrete methods in this book have paved the way for us to change the way we work together.
It encourages us to first get to know complex problems in detail, to include a wide range of perspectives and to understand for whom they are to be solved. Only then does the search for solutions begin. It is becoming more and more common to exchange initial ideas, make thoughts transparent, present unfinished work and obtain curious feedback.In the meantime, design thinking has increasingly become an attitude and it is impossible to imagine our culture without it." Imke Täufer-Krebs, Head of the New Work competence team GM.SH Gebäudemanagement Schleswig-Holstein AöR

Understanding, building and managing business ecosystems

The practical guide for strategy development, innovation and transformation

ISBN: 978-3-446-48188-6
Pages: 168
Publication date: July 2024

Doping for innovation!

Business ecosystems are partnerships of equal value between several companies. Together, they offer a service or create an innovation that would not have been possible for one company alone. This book shows exactly what the development and use of business ecosystems means, what needs to be taken into account, what limitations and also what opportunities are hidden behind these concepts. The author is consistently practice-oriented and provides concrete implementation instructions. With illustrative examples, valuable practical tips and helpful checklists.

- Explains how growth and differentiation advantages can be generated with platform and innovation ecosystems
- Shows how business ecosystems are established and further developed
- Guides you through the jungle of business ecosystems and provides clear definitions
- Helps to recognize and activate the potential of ecosystems for your own company
- Provides concrete instructions for action
- With many illustrative examples from practice

"The contents of this book were an important basis for the development of our ecosystem strategy. It makes the complex topic of 'ecosystems' tangible and contains very clear recommendations for action that can be implemented directly in practice. Definitely recommended!"
Robert Eberle, Head of Ecosystems Raiffeisen Group

"The contents of this book have become the standard in the field of ecosystem management at VNTR, the innovation and venturing team at PostFinance. It gives us a clear understanding of ecosystems and how we can apply them - and where we can't!"
Alice Dal Fuoco, Head of Innovation at PostFinance

"The contents of this book have been taught and applied by Dr. Lingens in regular training courses and consulting projects with the more than 100 member companies of our association in recent years. Many mistakes from earlier projects could have been avoided. Well-founded basics, logically explained and directly applicable in practice - an eye-opener on the subject of ecosystem management."
Dr. Michael Reber, Chairman Digital Industries World e. V.

Agile Entrepreneurship
Founding and building sustainable companies
ISBN: 978-3-446-48190-9
Pages: 192
Publication date: **June 2024**

For anyone who wants to set up a company but is afraid to take the first step

A precisely calculated business plan, a sophisticated strategy and detailed market analyses - in theory, all this is necessary to start a company. Sometimes it is also an excuse for never getting off the ground. If you want to build a sustainable company, you have to do one thing first and foremost: take action! This requires the courage to have your own vision, the ability to recognize and seize opportunities and the absolute will to develop relentlessly.

In this book, Boris Gloger tells his story as the founder of a successful management consultancy for business agility, which first had to create its market. He knows the fears, disappointments and pitfalls along the way and shows how he used the agile principles that he advocates for his clients as a consultant to build his knowledge-based, self-organized company. Founders learn how they can build an organization from the ground up that can withstand the demands of today's markets.

FROM THE CONTENT //
- Founding without being born into entrepreneurship
- Customers, competitors and the importance of focus
- Creating the structures for a knowledge-based organization
- Managing a company with agility and leading employees to self-organization
- Developing a personal leadership mindset

Developing organizations with quality
Mastering change with quality management and agile methods
ISBN: 978-3-446-47560-1
Pages: 250
Publication date: **October 2024**

Fit for the future!

Quality is more than just ISO certification! If the corporate strategy is based on the idea of quality, this means that a company must always know where it stands and where it is heading. It must be clear what distinguishes its own products or services from others, what customers expect and how these expectations can not only be met but also exceeded. Organizational resilience is increased, it is possible to react faster and more flexibly and the required quality can be ensured or even improved.

This book shows how organizational development is made possible by dealing with the topic of "quality" and how processes, structures and work equipment can be further developed on the basis of quality issues. This also includes developing the right corporate culture with the right mindset among employees. The combination with agile methods and approaches enables direct feedback on the results and on the previous collaboration, which in turn contributes to a continuous improvement of one's own procedures.

- Recognizing the potential of quality management and using it successfully
- Increase organizational resilience
- Continuous improvement of your own procedures in fast learning loops
- Mastering challenges with agile working methods

Sustainability and quality management
An unconventional compass
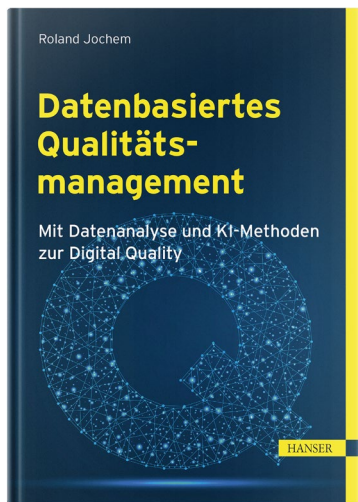**ISBN:** 978-3-446-48007-0
Pages: 180
Publication date: **October 2024**

Inseparably linked: Quality and sustainability

Quality management and the implementation of sustainability aspects are inextricably linked. It therefore makes sense to combine sustainability management and quality management. This book shows how it's done!
The authors choose an innovative approach and present the topic from different perspectives and in different ways, sometimes anecdotally, sometimes specifically or sometimes as picture stories, but always clearly, comprehensibly and specifically geared towards practical implementation.

- Combines sustainability management and quality management
- Takes into account the central standards relating to environmental and sustainability management (e.g. ISO 14001, EMAS)
- Shows what is important when it comes to sustainability and how to prepare a sustainability report
- With toolbox and implementation guide
- Entertaining, surprising and always instructive

Data-based quality management
Tools and ideas for better communication
ISBN: 978-3-446-48185-5
Pages: 300
Publication date: **November 2024**

A new approach to quality

Due to the digitalization and networking of production and the associated increase in data, quality management will play an even more important role in the future. This book shows how this availability of data in quality management can be used intelligently in procedures, methods and tools to design and optimize quality processes in the company. To this end, it first presents mathematical and statistical principles as well as data analytics and AI methods that can be used to generate information and quality knowledge from the data. It then shows how these methods can be used for various areas of quality management - for example process control, risk management or customer requirements - in order to ultimately provide intelligent decision support. Contributions from the field provide an insight into the implementation of data-based quality management in industry.

- Designing and optimizing quality processes based on data
- Developing a new understanding of quality and mastering current challenges
- Practice-oriented and scientifically sound
- With many practical examples

Prof. Roland Jochem is Head of the Department of Quality Science at the Technical University of Berlin.

36 Stratagems for the management

ISBN: 978-3-446-47764-3
6th revised edition
Pages: 320
Publication date: **September 2024**

Most important collection of list techniques used in China

Harro von Senger is regarded as THE expert on the Chinese art of planning - especially for the "36 stratagems", which he made famous in the West. The 36 stratagems are "techniques of cunning" in the form of linguistic formulas such as "Lead the sheep away with a light hand" or "Decorate the barren tree with artificial flowers". Almost every Chinese person knows them and uses them, while their importance is underestimated or even ignored in this country.

"In our European culture, we should learn to be cunning and not to demonize cunning from the outset, but to recognize it as something that is part of everyday life. (...) In Chinese, by the way, the same character 智 is used for the words wisdom and cunning."
Harro von Senger

The art of cunning, which has been cultivated and admired in China for centuries, is a closed book for Europeans. The "36 Stratagems" are the most important collection of cunning techniques used in China. **Harro von Senger** discovered them in China and made them known in the West. In this book, he presents the 36 stratagems specifically for management for the first time. He shows
- how you can successfully defend yourself against cunning maneuvers and attempts to take you by surprise,
- how you can prevent being ripped off in negotiations,
- how you can use the 36 stratagems legally and morally to your own advantage.

The 36 stratagems can become a daily working tool for every manager - as a source of inspiration and a globally applicable tool for solving and avoiding problems.

AI and the law

The guide to legal challenges when using AI applications
ISBN: 978-3-446-48124-4
Pages: 410
Publication date: July 2023

Clarifies questions about copyright, data protection law and authorities

The use of AI applications in everyday working life brings with it numerous challenges that companies and authorities should address at an early stage. Copyright law, data protection law and general personal rights are all affected.

This book takes a comprehensive look at the complex legal issues associated with the use of artificial intelligence (AI). Who owns an AI work? Does an AI work gain protection under copyright law if it is edited by a human? Does the work of a human lose copyright if it is edited by the AI? Does content generated by an AI have to be labeled? Can a human claim to be the "author" of an AI work? Can an AI use freely available online data for training purposes without further ado? You will find answers to these and other questions and learn how to use AI tools responsibly in your daily work.

From the content:
- What is AI and what are the legal problem areas
- AI and copyright
- AI training data
- AI and data protection law
- AI and general personal rights
- AI guidelines
- AI regulation

IT-Security

Technologies and best practices for implementation in the company

ISBN: 978-3-446-48082-7

2nd revised editon

Pages: 304

Publication date: **October 2024**

All aspects of IT security bundled in one book

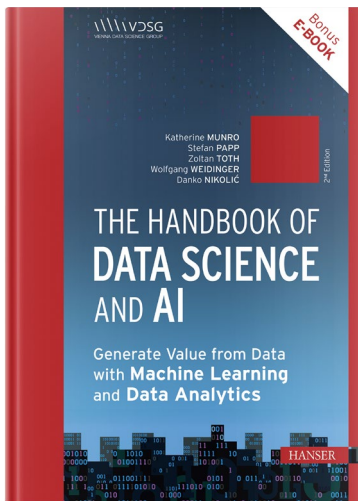Compact guide for CISOs, company security officers, project managers and IT consultants
- Best practices for implementation in the company
- With field reports from several Chief Information Security Officers (CISO)
- Your exclusive benefit: e-book inside when you buy the printed book

It is vital for companies to ensure the security of their information, systems and products. This is more true today than ever before, because as networking increases, so does the attack surface: every networked device is a potential gateway for threats, and this increases the risk even further. But how can you protect your company from these threats and ensure security?
The answer to this question - and many helpful ideas and best practices - is provided in this practical guide to IT security. All aspects of IT security relevant to decision-makers are described and the know-how required for further decisions is conveyed in a targeted manner. The book serves as a guide on your way to consistently and efficiently ensuring and implementing IT security in your company.

From the content
- Objectives of IT security (confidentiality, integrity, availability)
- Basic measures (assigning authorizations, failure planning, tests, etc.)
- Securing the IT infrastructure in the company
- IT security in the cloud
- Systematic implementation of threat and risk analyses
- Secure product development
- Security in production networks and systems
- Legal framework conditions
- Organization of IT security management in the company
- Security standards and certifications
- Relevant interactions between data protection and IT security

The Handbook of Data Science and AI

Generate Value from Data with Machine Learning and Data Analytics

ISBN: 978-1-56990-934-8

3rd updated and extended edition

Pages: 704

Publication date: **August 2024**

A comprehensive overview of the various fields of application of data science and artificial intelligence.
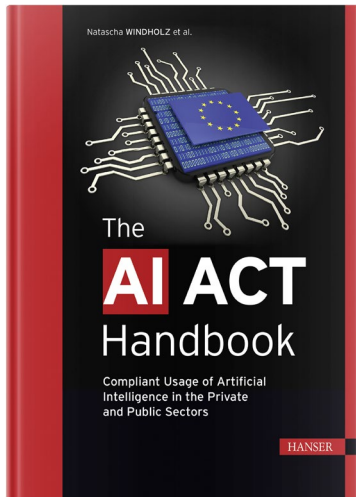
Data science, big data and artificial intelligence are currently some of the most talked about and misunderstood concepts in industry, government and society. This book clarifies these concepts and gives you practical knowledge to apply them.

The book approaches the topic of data science from several angles. It shows you how to build data platforms and apply data science tools and methods. Along the way, it helps you understand - and explain to various stakeholders - how you can generate value from these techniques, e.g. by using data science to help companies make faster decisions, reduce costs and enter new markets.

A second part describes the basic data science concepts, including mathematical fundamentals, machine learning methods including frameworks as well as text, image and language processing. The book is rounded off with legal considerations and practical case studies from various industries.

FROM THE CONTENT //

- Fundamentals of mathematics: Understanding and using ML algorithms
- Machine Learning: From statistical to neural methods; from Transformers and GPT to AutoML
- Natural language processing: tools and techniques for gaining insights from text data and developing language technologies
- Computer vision: gaining insights from images and videos
- Modeling and simulation: modeling the behavior of complex systems, performing what-if analyses
- ML and AI in production: from experiment to data science product
- Presenting results: Basic presentation techniques for data scientists

The AI Act Handbook

Compliant Usage of Artificial Intelligence in the Private and Public Sectors

In English language

ISBN: 978-1-56990-314-8

Pages: 300

Publication date: **December 2024**

Comprehensive handbook on the EU's recently adopted AI Act

The handbook provides a well-founded and wide-ranging overview of the content of the European AI Act and its impact on the various areas of application of artificial intelligence in the private and public sector. After a brief introduction to the current state of AI in terms of international strategies, methods, regulation and ethical issues, the second chapter explains the content of the AI Act based on its structure. Further chapters in this part of the book deal with data protection, intellectual property and IT law.

In the second part of the book, the impact of the AI Act on various AI application areas such as mobility, work, critical infrastructure, medicine, etc. is discussed using various case studies. The authors differentiate here between private and public sector.
The book concludes with AI governance risk compliance in companies and gives practical advice on using guidelines and governance framworks, the impact of ethical questions and the meaning of soft Law e.g. standards.

The team of authors consists of lawyers specializing in IT and data protection law and the use of AI. It consists, among others, of Austria's representative in the AI Act negotiations at EU Council level and the founder of the Austrian chapter of Women in AI.

CX-Design
Designing the experience for successful customer projects
ISBN: 978-3-446-48086-5
Pages: 200
Publication date: **December 2024**

Designing products and services holistically from the user's perspective

- Expand your design capabilities
- Develop more effective products and services
- Drive innovation and integrate ethical considerations into your design process
- With practical guidance and examples to solve real-world problems
- For use in product design, UX design, service design and more
- With current trends and new developments in design research

"CX Design" is a comprehensive work that illuminates the world of design research in all its facets. It provides a solid foundation for budding researchers and experienced professionals alike. The book begins with the basics of design research, explains research methods and ethics, and then moves on to the practical side.

A special feature of this book is the introduction to a self-developed method (the empathic conversation) and the emphasis on the user-centered approach. It guides readers through techniques for user research, persona development and usability testing to ensure that products and services meet the real needs of users.
The book also includes case studies from various fields, including product design, user experience (UX) and service design, which illustrate the applicability of the concepts in the real world. It highlights trends and challenges in design research and gives an outlook on the future of this emerging field.

With a clear structure, easy-to-understand language and numerous real-world examples, this book provides a valuable guide for designers, researchers and innovators who want to use design research as a tool to improve their products and services. It is an essential handbook for anyone who wants to harness the power of design to innovate

Manage and design processes with BPMN
Practical book with lexicon, tasks and solutions
ISBN: 978-3-446-48186-2
Pages: 300
Publication date: **November 2024**

Learning success guaranteed!

BPMN (Business Process Model and Notation) is used to model processes and represent them graphically in a standardized way. Each activity is assigned directly to a responsible role or area. BPMN forms the basis of all process optimization and links the requirements of management and IT.

This practical work consists of two parts: a lexicon and a task section with solutions.

In the lexicon section, all the key terms relating to BPMN are explained in a practice-oriented way and illustrated with many examples. All relevant questions relating to the management and modeling of processes are answered: What is important? What are the goals? Why are rules important and which ones are suitable? Or what needs to be considered in process analysis, hierarchization or style, for example?

The tasks and solutions section is all about concrete implementation. The reader gets straight into action. The tasks range from analyses and graphical representations to documentation of problems that also occur in practice. The practical solution section enables self-assessment at any time and guarantees learning success.

- Know what BPMN is all about
- Managing and modeling processes
- Simple, clear and consistently practice-oriented

Effective software architectures
A practical guide
ISBN: 978-3-446-47672-1
10th revised edition
Pages: 372
Publication date: **August 2024**

Current overview of the essential aspects of software architectures

- Architectural samples
- Technical concepts
- Architecture analysis and evaluation
- Documentation of architectures
- Modernization of existing systems
- Examples of real software architectures
- iSAQB Curriculum
- New in the 10th edition: C4, Cloud, DataContracts

Software architects have to implement complex functional and technical requirements for IT systems and they must design these systems to be flexible and expandable through comprehensible structures.

This practical guide shows you how to develop software architectures effectively and systematically. **Gernot Starke** supports you with specific practical tips from his experience.

You will find answers to key questions:

- What tasks are part of software architecture?
- How can I proceed with the design?
- How do I communicate and document software architectures?
- How do architecture patterns help?
- How do I analyze and evaluate software architectures?

Basic course programming in Java
ISBN: 978-3-446-48122-0
9th, revised and extended edition:
Pages: 800
Publication date: **September 2024**

THE introduction to Java, completely updated and with new features for Java 21

- No programming knowledge required!
- Guides you successfully from the first steps to the development of applications in networks
- With numerous exercises and examples
- At www.grundkurs-java.de: Software and tools, all sample programs, solutions to the exercises, additional material, updates and more
- New in the 9th edition: All relevant innovations from Java 10 to Java 22
- Your exclusive advantage: e-book inside when you buy the printed book

With this textbook, you can learn both Java and programming. It assumes no prior knowledge of programming, programming languages or computer science. All chapters include exercises that you can work on to improve your understanding.

After all, you can only learn a language if you speak it!

You will find a comprehensive and up-to-date introduction on around 800 pages. From the basics of programming and elementary language elements to object orientation and advanced topics such as threads, streams, developing distributed applications in networks and lambda expressions, you will learn everything you need to successfully get started with programming.

FROM THE CONTENT //
Introduction to programming in Java/object-oriented programming in Java/graphical user interfaces in Java/concurrent and distributed applications/lambda expressions and functional programming/conclusion, outlook and appendix

From Java to C

ISBN: 978-3-446-48103-9
2nd updated edition
Pages: 256
Publication Date: **September 2024**

Unrivaled textbook for an introduction to C with previous knowledge of Java

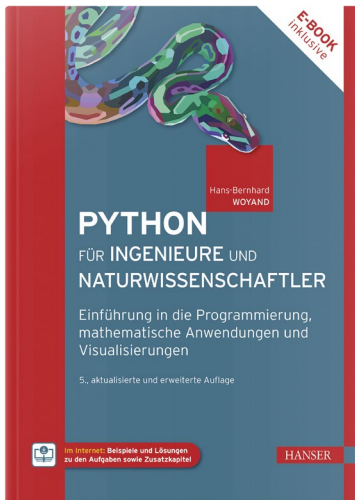**2nd edition of the classic "C for Java Programmers"**
- Systematic introduction to C with a focus on the differences between C and Java
- Quick start for readers in a hurry as well as numerous examples and exercises
- Extensive appendix for reference
- With additional material: the example programs from the book, the solutions to the exercises and further information

The book provides an introduction to the C programming language and assumes knowledge of the Java language. Java is often taught as the first programming language, while C also plays an important role in advanced courses and in professional practice. Compact introductions at the beginning of each chapter provide a quick overview of the possibilities of C in comparison to Java. The special features of C are then discussed in detail.

You will therefore also benefit if you have already come into contact with C and would now like to deepen your knowledge. The book focuses on programming with pointers, which do not exist in Java, and dynamic data structures, which Java provides through predefined classes. Simple and structured data types, control structures, functions, input/output and the C standard library are also covered. Many program examples show the application of the concepts. Exercises allow you to put your newly acquired knowledge to the test.

FROM THE CONTENT //
- Structure and translation of C programs
- Control structures
- Data organization
- pointers
- functions
- Input/output and file access
- Dynamic data structures
- Standard library

Python for engineers and scientists

Introduction to programming, mathematical applications and visualizations

ISBN: 978-3-446-48236-4

5th, updated and expanded edition

Pages: 350

Publication Date: **November 2024**
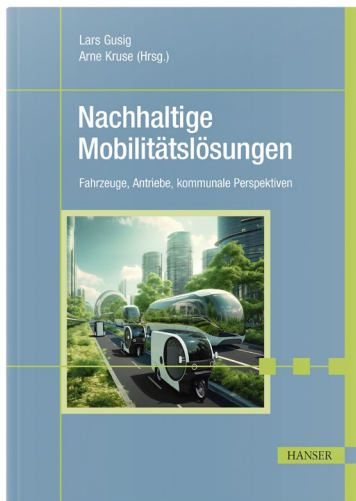
Ideal for beginners

Would you like to learn Python as your first programming language or get to know the basic mathematical and scientific Python libraries? This book offers an introduction to programming and the mathematical applications of Python.

It is particularly suitable for students with a minor in computer science, e.g. engineers or scientists, and does not require any previous knowledge. Even people with programming experience will find an introduction to the most important mathematical and scientific Python libraries in this book.

The book focuses on mathematical applications and working with Numpy, Matplotlib, Sympy, Scipy, Scikit-Image and VPython. With numerous exercises and detailed annotated solutions.

New in the 5th edition: chapters on "Functional programming" and "Introduction to designing graphical user interfaces with Tkinter" as well as new subchapters on "Numerical calculations with Numpy" and "Numerical analyses with Scipy".

At **plus.hanser-fachbuch.de** you will find additional digital material for this title in the form of further chapters and examples as well as detailed solutions to the exercises.

Sustainable mobility solutions

Vehicles, drives, municipal perspectives

ISBN: 978-3-446-48083-4

Pages: 320

Publication date: **October 2024**

A book on sustainable mobility? We already know all that!

Today, various drive concepts, funding models and urban planning approaches are the subject of lively public debate - often without the necessary specialist knowledge. People argue about concepts that they don't actually understand. The authors provide a remedy here: with their contributions, they paint a holistic overall picture of "sustainable mobility solutions".

Sustainability in the field of mobility requires cooperation between different disciplines and organizations. In addition to vehicle construction, mechanical engineering and electrical engineering, urban planning, traffic engineering, industrial engineering and energy technology are also particularly relevant. The necessary processes and methods are presented in this compact textbook from different perspectives and interfaces to the other players are shown.

In addition to the purely engineering perspective, planning and political aspects up to municipal citizen participation are of central importance. The aim is to create an understanding of the application of these processes, convey relevant basic principles and present selected practical examples.

Numerous exercises on the individual topics emphasize the textbook character of the work and deepen the learning material. Detailed solutions are available for download at **plus.hanser-fachbuch.de**.

Math with the kangaroo 6
The best tasks from 2020 to 2024
ISBN: 978-3-446-48183-1
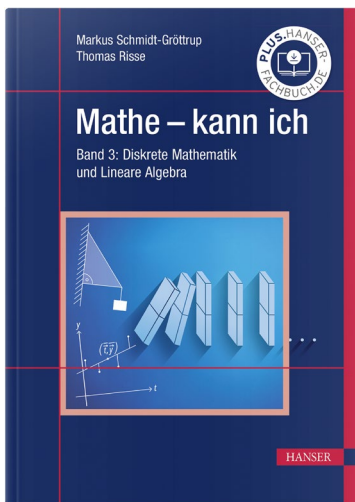**Pages:** 200
Publication date: October 2024

The book on the world's largest mathematics school competition

The 6th volume of Math with the Kangaroo contains the most interesting and beautiful problems that had to be solved as part of the international mathematics competition from 2020 to 2024.

The aim of the Kangaroo competition is to get children and young people interested in mathematics. The tasks and problems, many of which are based in the pupils' everyday lives, are fun and challenging and also give an impression of the diversity and practical benefits of mathematics. The participants - children and young people from all types of schools - are enthusiastic and enjoy taking part, often year after year. The focus is on having fun with mathematics and in the end there are only winners.

The Kangaroo competition has been around for many years - and no longer just in Europe, where it all began. Even in Asia, America and Africa, schoolchildren puzzle over the diverse, lovingly designed multiple-choice problems once a year. They are an attractive addition to lessons and are also fun to do at home with family and friends.

Let yourself be carried away!

Math - I can

Volume 3: Discrete Mathematics and Linear Algebra
ISBN: 978-3-446-48228-9
Pages: 250
Publication date: **November 2024**

Motivating didactic concept - focuses on what has already been learned, not on what has not yet been achieved

"I can do math" - a sentence that the majority of students at the beginning of an engineering course certainly do not associate with themselves. The book series "Mathe - kann ich" aims to change this quickly and easily.
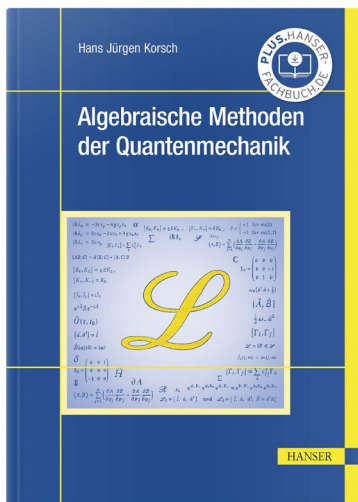
Volume 3 continues the topics from the "Core Curriculum" of the European Society for Engineering Education (SEFI), which takes into account the essential content and objectives of mathematics education for engineers:
- Discrete mathematics,
- linear algebra.

Each chapter briefly introduces the topic and defines the terms used. Many simple illustrations contribute to the illustration. Formulated learning objectives, each beginning with "I can ...", help to make the required mathematics accessible. Working with can-do lists makes students' own learning success visible: simply tick them off! In addition, it connects what is to be learned with the meta-level of the material, which is crucial for lasting memory. The innovative didactic approach has proven itself in practice.

Each chapter also offers a variety of tasks and detailed solutions. There is a time indication for each task, which helps students to make a choice at the beginning. The tasks themselves are different, some related to application, some to arithmetic and some to clarify concepts.

Additional materials for the book, such as computer-assisted solutions to the exercises or some of the visualizations, are provided at **plus.hanser-fachbuch.de**.

Algebraic methods of quantum mechanics

A textbook with examples and exercises

ISBN: 978-3-446-48016-2

Pages: 200

Publication date: October 2024

Introduction to the basic algebraic methods for the description of quantum mechanical systems

Algebraic methods play an important role in quantum mechanics. In this compact textbook, the mathematical foundations for this are presented in a clear and readable way, with a deliberate restriction to relatively simple mathematical structures.

In particular, it is not a textbook on the theory of Lie algebras or group theory, but an introduction to the basic algebraic methods used in current interesting problems in physics. All the algebraic techniques presented are used to describe quantum mechanical systems in order to illustrate their possibilities and to show how they can be used to gain a better and deeper understanding of physical phenomena.

Overall, emphasis is placed on the clearest and most readable presentation possible, supported by illustrations, detailed examples and exercises with detailed solutions. Almost incidentally, a comprehensive collection of formulae is developed and provided, which is useful for dealing with a wide range of problems in quantum physics.

The fried egg at altitude
Modeling of everyday phenomena
ISBN: 978-3-446-48078-0
Pages: 500
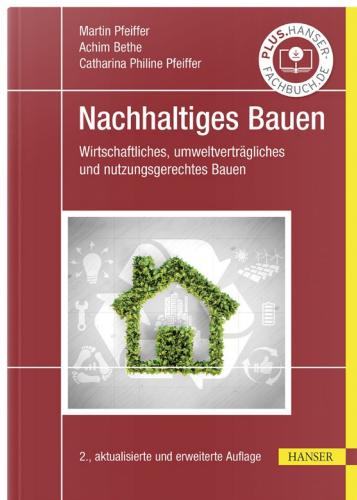Publication Date: **September 2024**

Playful introduction to mathematical modeling

Physicists and engineers form their view of the world with the help of mathematics. They develop and use equations with which states and changes can be described as models. This requires analytical thinking, as the object of investigation must be broken down into its individual effects and reduced to the essentials. This book is an entertaining lesson in how to acquire this skill in a playful way. The special thing about it are the examples from everyday life, which impressively show that basically any physical-technical problem can be modeled mathematically.

Seemingly simple questions lead to surprising and unexpected explanations, such as
- Can you "sail" against the wind on a ship with a propeller driven by a wind turbine?
- How much cooking time do you need for a hard-boiled egg at a certain altitude and at what altitude can you only make fried eggs?
- You sweat less going downhill than uphill, but why is that?
- If you have to cover a certain distance in the rain, what would be the best strategy to get as little wet as possible?

With the help of this book, students of STEM subjects, university lecturers and secondary school teachers will discover how appealing it is to use theoretical knowledge to solve specific practical problems

Sustainable building
A practical guide
ISBN: 978-3-446-48184-8
Pages: 500
Publication date : **September 2024**

Sustainable building - a topic for the future

The importance of sustainable building has been growing in the social debate for several years. In the future, buildings must be economically, ecologically and socially just. For this reason, sustainable solutions for buildings require a holistic and sustainability-oriented approach.

The overriding goals of sustainable building are economic efficiency, environmental compatibility and user-friendliness. Economic efficiency is achieved by minimizing costs and optimizing value creation. Environmental compatibility is achieved in particular through energy efficiency and resource conservation over the entire life cycle of the building, from conception to recycling. Usability means functionality, comfort, health, etc.

Based on needs-oriented and integral planning, the fundamentals of the textbook include an introduction to life cycle-oriented, economic, ecological and social construction. Facility management, life cycle engineering and sustainability certifications are important aspects of the in-depth study.

Extensive tables and checklists are available at plus.hanser-fachbuch.de.

New in the 2nd edition are sections on BIM (Building Information Modeling).

Room acoustics
How to design rooms better for hearing
ISBN: 978-3-446-48084-1
Pages: 256
Publication date : **July 2024**

Introduction to the basic aspects of room acoustics

Room acoustics have an inconspicuous but clear influence on our everyday lives. Whether it's daily work in the office, teaching in a lecture hall or making music in a concert hall, room acoustics influence how well all of this is possible. If optimum room acoustic conditions are achieved, the foundations are laid for efficient communication, productive work and thrilling experiences.

In this compact textbook, the fundamental relationships of room acoustics are explained in a practical way, the building blocks of architecture are clearly described and the rules of good design are explained. The complex interrelationships are cleverly illustrated using planning examples and summaries. The content is supplemented by interviews with leading figures from the industry and academia (including Eckhard Kahle, Michael Vorländer, Stefan Weinzierl and Jamilla Balint), who share their experience and knowledge with the reader.

The textbook structure with examples, exercises and solutions contributes significantly to a lasting understanding. Supplementary materials to the book content are available online in the form of audio examples, videos and interviews.

Light and lighting in the media sector
3rd updated edition
ISBN: 978-3-446-48182-4
Pages: 440
Publication date: **October 2024**

From the basics to applications in the show and event sector

This textbook teaches you everything you need to know about light and lighting in the media sector.

In addition to the basic parameters of lighting technology and colorimetry and the perception of the eye, the characteristics of light sources including LEDs, various spotlights, lighting consoles and lighting control are covered. Modern lighting systems such as media walls and media servers (digital lighting) are explained and their application demonstrated. Developments in the direction of AR and VR are explained.

The book shows applications ranging from theater and television lighting to show and event lighting. Practical examples, such as the Eurovision Song Contest, show what is possible with light and lighting.

With comprehension questions, exercise examples, lots of photos, graphics and info boxes, it is ideal as a textbook to accompany a course or for self-study. The authors all work in the field of lighting planning and lighting design and guarantee a high level of practical relevance.

In the 3rd edition, a section on AI and lighting control has been added and new spotlights and lighting consoles have been introduced.

Film music for filmmakers
Theory and application
ISBN: 978-3-446-48207-4
Pages: 350
Publication date: **November 2024**
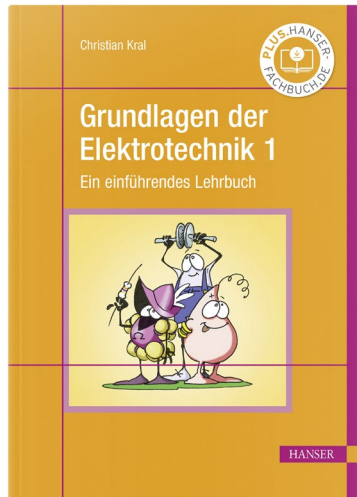
Everything filmmakers need to know about film music

Reinhard Kungel has been a director, cameraman and documentary filmmaker for ARD and the cinema for many years. In this essential textbook, he shares his concentrated (insider) knowledge of film music and the importance it has for film.

Whether it's a commercial, a movie romance or a nature documentary - without the right music, a film or video remains powerless. The author clearly explains the effect music has on the audience, how music influences the narrative of each film and how film music is composed today and will be created in the future with the help of AI. In the application-oriented section, the author discusses how filmmakers can best proceed when choosing suitable music for their films and what they need to bear in mind.

The textbook provides numerous examples from feature films and documentaries, ex-planatory info boxes and exclusive interviews with renowned film composers.

From the contents:
- Music and perception
- A brief history of film music
- Creating atmosphere
- Manipulating space and time
- Film music in the editing room
- MIDI makes it possible - I make my own film music
- A.I. - Artificial intelligence in film music
- The future of film music

Fundamentals of electrical engineering 1
An introductory textbook
ISBN: 978-3-446-47376-8
Pages: 250
Publication date: July 2024

Easy introduction to electrical engineering with reduction to the essentials

Familiarizing yourself with a new subject is like learning a foreign language: new technical terms, symbols, quantities, units, long equations, lots of math, pages and pages of text - how are you supposed to understand it all? This book is written with the intention of providing quick help.

This textbook is aimed at students in training and further education as well as students on a bachelor's degree course who are starting out in the basics of electrical engineering. The specialist knowledge is reduced to the essentials. What is not necessary to understand the basics is either omitted or, where appropriate, marked as extended or in-depth specialist knowledge. Integral and differential calculus are omitted; instead, the tools of the trade for electrical engineers are taught. Numerous illustrations support the presentation and convey the most important facts in a clear and varied way.

In terms of content, this textbook begins with an introduction to physical quantities and the most important mathematical relationships and formalisms that are subsequently required. This creates a uniform basis for all readers to get started with direct current technology. The electric and magnetic fields are then covered.

Practice makes perfect, and math and arithmetic are also included. There are no sample examples, exercises or learning objective checks in the book, as these are all available online via plus.hanser-fachbuch.de via LeTTo, free of charge and interactive. Every question, every step and part of an answer can be checked online immediately. Each task can be repeated as often as required with different, randomly varied numerical values and practiced until everything is correct.

Electronics and circuit technology

A comprehensible introduction
3rd revised and expanded edition
ISBN: 978-3-446-48014-8
Pages: **320**
Publication date: **November 2024**

Explains the most important components and their possible uses in circuits

This textbook introduces the field of electronic circuit technology and is aimed at students of electrical engineering, computer science, communication technology and other technical and information technology courses. The presentation of the fundamental relationships is clear and tailored to the understanding of the circuits. A collection of comprehension questions at the end of each chapter reinforces what has been learned.

Readers learn how important components such as resistors, capacitors, coils, diodes, bipolar and MOS transistors etc. work. The possible applications of the components in circuits are described in detail. Small-signal (amplifier) operation and large-signal (digital) operation are explained and the most important calculation methods are presented.

Selected application circuits such as operational amplifiers, analog-to-digital converters, CMOS technology, memory, etc. are used to illustrate the implementation of complex functions using electronic circuits. Computer-based circuit analysis is briefly discussed using the example of the frequency filter (PSPICE program). These topics are new additions: Circuits for low supply voltages, signal amplifiers for sensors, parasitic elements of passive components.

Message transmission technology
An introduction to information, communication and media technolgy
8th completely revised edition
ISBN: 978-3-446-47584-7
Pages: **52**0
Publication date: **July 2024**

The aspects of modern telecommunications technology in an understandable and clear way

Information, communication and media technology has developed steadily in recent years. This is a consistent evolution in processes, technologies, frequency utilization and software use. This has resulted in higher quality characteristics for most systems and applications. The transition from the analog to the digital world is now almost complete, which means a considerable increase in performance for message transmission technology. A large number of new services can therefore be realized. This applies to all transmission media.

In this 8th edition, the content of the proven textbook has been restructured and streamlined, but expanded to include the latest developments in all areas. This means that users of the book are "up to date" in terms of their technical knowledge.

The individual topics of message transmission technology are examined from a physical and mathematical perspective. First and foremost are the definitions and explanations of functions, but also the technical specifications. Tables and illustrations also provide relevant overviews in order to easily recognize correlations and make comparisons.
The proven textbook concept brings the reader's technical knowledge up to date and is ideal for learning and reference.

Basics of pneumatics

6th updated edition
ISBN: 978-3-446-48025-4
Pages: 228
Publication date: **August 2024**

Basic knowledge for engineers

By increasing the degree of automation, modern manufacturing processes can be constantly rationalized, thus ensuring the competitiveness of products. Fluidic - hydraulic and pneumatic - systems are of decisive importance here.

This textbook conveys the essential basic knowledge of pneumatics in a concise form. In particular, the basic equations and the basic laws of thermodynamics are introduced. Furthermore, the components used in pneumatic systems (cylinders, motors, valves, etc.) and a large number of basic circuits are presented using the symbols commonly used in pneumatics.

Practice-oriented exercises with detailed explanations of how to solve them and, in the case of the circuit diagram creation exercises, the complete circuit diagrams with descriptions allow the material to be deepened.

Introduction to automation technology

Automation systems, components, project planning and design
2nd updated and extended edition
ISBN: 978-3-446-48019-3
Pages: **230**
Publication date: **December 2024**

Basic textbook on the trend topic of automation

In times of digital change and a shortage of skilled workers, automation is a social megatrend. This textbook provides a sound and compact introduction to the broad field of automation technology.

Starting with the basics of the field and the clarification of important basic terms and technical processes, the design and structure of automation systems are explained in more detail. Step by step, readers learn about and apply the interfaces to the process.
The project planning and design of automation systems is a focal point and shows the path from the automation task to the planning documents required to set up a system. A consistent example illustrates the individual processing stages. Numerous examples, pictures and exercises round off the presentation and facilitate understanding and transfer into practice.

It is aimed at students of electrical engineering, mechatronics and control engineering. It is also a practical reference work for engineers and industrial engineers in practice.

Contents: Fundamentals; Design and structure of automation systems; Measurement technology; Control technology; Communication; Information processing; Project planning and design of automation systems

For the new edition, the textbook has been updated and selectively expanded to include these topics: RAMI, Ethernet-based systems, ASi-5.

Additional exercises are available on the Internet.

Basics of handling technology
6th updated edition
ISBN: 978-3-446-48018-6
Pages: **586**
Publication date: **June 2024**

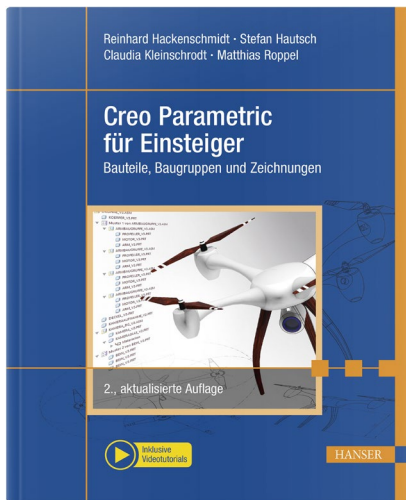**This textbook presents the handling of workpieces of all kinds**

These include standard parts, machine parts, finished products, tools, strip material and bulk material in the production process. The variety of specific requirements leads to a wide range of different devices. These are analyzed step by step in the book and practical solutions are systematically presented.

Handling technology is an interdisciplinary field that combines feeding technology, machine interlinking, pick-and-place devices, grippers, hand-guided manipulators, industrial robots and assembly transfer technology under one roof. Handling is of central importance in the development of modern factory structures and effective production processes.

Readers are provided with a tried-and-tested and informative guide that presents the basics and solutions in a comprehensible language and comprehensively illustrated form. Many practical examples also show that getting the details right can often produce surprisingly effective solutions. Exercises and control questions provide guidance for your own work and consolidate your knowledge. Important technical terms are also listed in English.

The sixth edition appears in four colors throughout for the first time. The presentation of the devices and the standards have been updated.
You will find extensive additional digital material for this title on the Internet: detailed solutions to the exercises and answers to the control questions, explanatory images, a German-English dictionary of handling technology and an illustrated English-German dictionary of handling technology.

Creo Parametric for beginners

Components, assemblies and drawings
2nd updated edition
ISBN: 978-3-446-47998-2
Pages: **288**
Publication date: **August 2024**

Fit for designing with Creo Parametric (including video tutorials)

Compact and practical, this book prepares you for 3D CAD design with Creo Parametric and guarantees a multimedia learning experience thanks to the accompanying video tutorials. It is aimed at students and designers, e.g. from the fields of mechanical, automotive and plant engineering, and is ideal for self-study or to accompany lessons.

Based on version 6.0 and applicable up to version 10.0, the authors introduce you to the operation of the program interface and the core functionalities of Creo Parametric. You will learn the basic working techniques of 3D design with the CAD software:

- Creating 2D sketches
- Designing components - from profiles to drill holes, curves and turned parts to tension and composite elements
- Creating assemblies and installing components
- Deriving technical drawings including the creation of views, dimensions and parts lists
- Outlook on parametric design, rendering and the creation of grid structures for 3D printing

All design steps are explained using the practical example of a camera drone. The book's website contains numerous tutorial videos in which you can follow the 3D design in the Creo working environment step by step. You will also find the drawings and construction instructions for a more complex drone model.Planning and operation.

Motor construction
Basics and practical applications
ISBN: 978-3-446-48204-3
Pages: 392
Publication date: October 2024

Practical basic work on the mechanical design of combustion engines

It is aimed at students of mechanical engineering and automotive engineering, but is also suitable for car and motorcycle enthusiasts and hobby users in general due to its easy-to-understand format.

The book concentrates on conveying mechanical-mathematical fundamentals as well as practical design knowledge. The thermodynamic process sequences in engines are deliberately excluded.

The following topics are covered:
- Functionality and categorization of combustion engines (focus on gasoline engines)
- Two-stroke and four-stroke engines with their respective special features
- Mechanical components of an engine: crankshaft & connecting rods, bearings & lubrication, pistons & cylinders, valves & camshaft
- Additional auxiliary units such as ignition systems, starter motors and carburetors
- Design and calculation of the relevant components through to layout
- Construction of camshafts

The book also contains numerous application examples. These include constructive engine improvements and self-constructions of simple engines. All the self-construction projects presented were built by the author himself and tested and tried out in a test laboratory. This provides aspiring engineers with valuable workshop practice, including the use of lathes, milling machines and welding equipment. Supplementary videos on the design and manufacture of

Vehicle transmission
5th completely revised and expanded edition
ISBN: 978-3-446-47935-7
Pages: 300
Publication date: **November 2024**

Power transmission in vehicles - Understanding and designing vehicle transmissions

A complete overview of all transmission concepts currently used in motor vehicles, clearly presented and suitable as support for students as well as for engineers in practice.

When it comes to transmissions, there are many different solutions in technology. This textbook provides an overview of the different types of transmissions in vehicles and explains their properties and functions as well as the different requirements placed on the transmissions. It can therefore be used both during lectures and as a reference book.

The basics of uniform transmissions are covered as well as the requirements of motor vehicles for torque converters. In addition to the stepped transmissions, possible principles for a stepless ratio change and the respective technical designs are described.

Both pure electric drives and hybrid drives have been newly included **in the 5th edition**.

Methods of integrated product development
Practical guide
ISBN: 978-3-446-47412-3
Pages: **350**
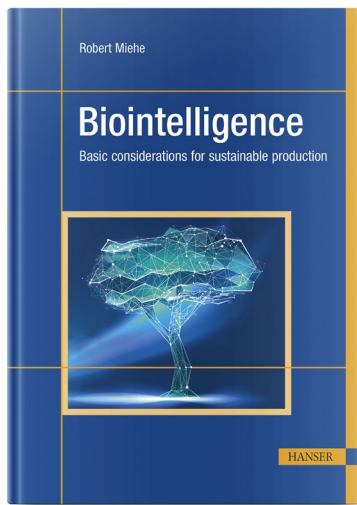Publication date: **October 2024**

This book presents tried-and-tested methods of integrated product development

These have been proven to contribute to the development of successful products. The methods presented have proven themselves in numerous projects and represent the methodological knowledge that effectively supports employees in product development, product design and construction.

The practical guide presents methods that can be used for brainstorming, defining requirements and developing, analyzing and evaluating solutions. The following fields of application are covered:

- Finding ideas for new products
- Clarifying product requirements
- Developing solutions through functional synthesis
- Improving solutions by varying the principle or design
- Finding solutions with solution collections
- Developing concepts with the morphological box
- Determine properties of solutions with orientation experiments
- Evaluate and select solutions with a concept comparison
- Evaluate technical risks with FMEA light
- Cost-effective design

The authors provide a compact and clear introduction to the methods in order to enable users to apply the methods profitably without any detours. Numerous application examples from industry convey the practical benefits.

Biointelligence
Basic considerations for sustainable production
ISBN: 978-1-56990-191-5
Pages: **438**
Publication date: **August 2024**

In English language

Due to the need for more sustainability and supply chain security, industrial production has to change.

Biointelligent systems can be a big part of the solution. By combining the benefi ts of digitization with the advantages of natural processes, production can be truly transformed to become more efficient, decentralized and sustainable.

The book gives a thorough and comprehensive overview of the concept of biointelligence, which has become the next big thing in engineering. Robert Miehe not only introduces existing theoretical approaches to biointelligence but also shows ways in which biointelligence can be applied practically. Examples include the development of biohybrid materials, the construction of cell-like products or the use of microorganisms that can produce hydrogen.

This book is for students and researchers in engineering as well as professionals in industry who are committed to making production more sustainable.

Processing of solid and liquid silicone rubbers
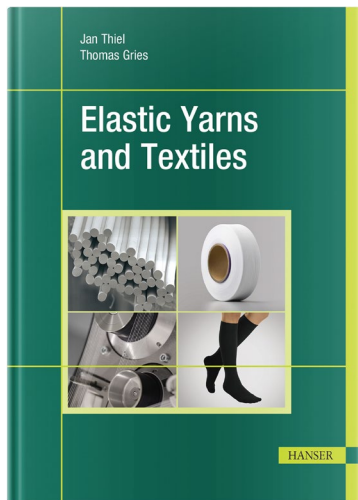Exercise book
ISBN: 978-3-446-45817-8
Pages: 350
Publication date: **December 2024**

In-depth insight into the processing of silicone rubber

Silicone rubber is becoming increasingly important in plastics technology, as its outstanding properties make it suitable for a wide range of applications. In medical technology, silicone rubber is preferred to other plastics due to its good processability and physiological harmlessness, among other things; in the automotive sector, the wide service temperature range of -50°C to +200°C predestines silicone rubber for applications in the engine-related area. The excellent damping and haptic properties make silicone rubber interesting for the growth market of the consumer electronics industry.

The aim of the book is to give readers a sound insight into the processing of silicone rubber: In addition to current testing technology for the comprehensive characterization of mechanical and physical properties, readers are presented with various options for processing solid and liquid silicone rubber. Current application examples from industry and research are used to demonstrate the future potential of silicone rubber, also in combination with other materials.

Elastic Yarns and Textiles

ISBN: 978-1-56990-161-8
Pages: 220
Publication date: **December 2024**

Understanding of the basic principles of elasticity and the relationships between the manufacture, processing, and application of elastic fibers, yarns and textiles

Elasticity is the ability of a material to be stretched under tensile load and to return to its original starting position on recovery. It is one of the most important properties of textiles and has a direct effect on their functionality. It is elasticity that makes it possible to open up different areas of application through special and mass-produced products, especially in the areas of stretch and compression. About 80% of all clothing textiles produced today, as well as almost all medical textiles, contain special elastic yarns that enable or reinforce elasticity.

This edited work describes and explains the production of elastic textiles from raw material to fiber and yarn, processing, and application. Environmental aspects (e.g. recycling) are also explained. Expert contributions from industry and research present the state of the art and practical new developments in such a way that users from industry and trade can use them in line with market requirements. In addition, trainees and students as well as textile experts are addressed.

Plastics testing

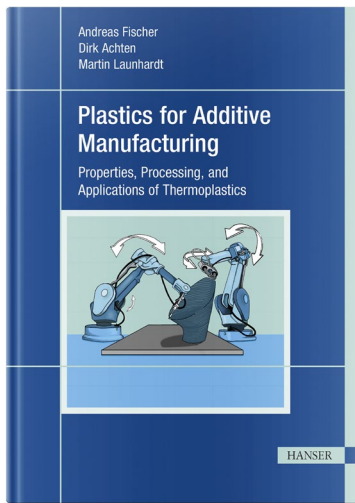4th revised edition
ISBN: 978-3-446-44718-9
Pages: **720**
Publication date: **October 2024**

Systematic and complete presentation of measurement and evaluation methods for plastics testing

The enormous growth rates in the production and use of plastics increase the demand for meaningful measurement and evaluation methods in plastics testing. Advances in electronic measurement technology have led to both the further development of classic testing methods and the establishment of completely new methods. The significance of these parameters for quantifying the relationships between the microstructure and the macroscopic properties is presented. Additional information about the damage processes and mechanisms involved can be obtained by using coupled non-destructive plastics testing methods or hybrid methods of plastics diagnostics. Examples of the optimization of plastics and composites and the evaluation of component properties provide an insight into modern plastics testing based on materials science.

This fourth edition includes a completely new chapter on polymer film testing, and many other updates and corrections have been made throughout the book.

Andreas Fischer
Dirk Achten
Martin Launhardt

Plastics for Additive Manufacturing

Properties, Processing, and Applications of Thermoplastics

HANSER

Plastics for Additive Manufacturing
Properties, Processing, and Applications of Thermoplastics
ISBN: 978-1-56990-229-5
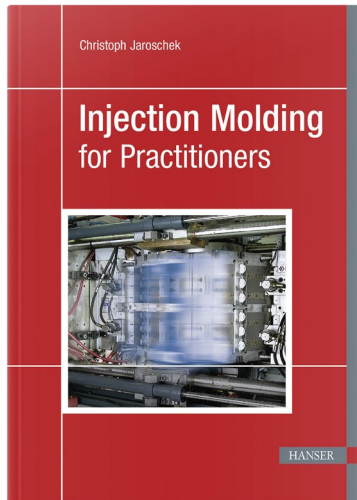Pages: 460
Publication date: December 2024

A unique, indispensable guide for anyone employing thermoplasticbased 3D printing and requiring know-how in the selection of suitable plastics

This practical book is aimed at companies that want to integrate thermoplastic-based 3D printing into their manufacturing processes and need to build up know-how in the selection of suitable plastics. It presents the thermoplastics relevant for additive manufacturing and their process-specific features as well as a wide range of applications.

The book covers the following topics:

- Functional principle and build-up strategy of thermoplastic-based additive manufacturing processes, in particular fused layer modeling (FLM) and selective laser sintering (SLS)
- Classification and formulation of thermoplastic polymer materials
- Mechanical, thermal, and chemical properties of thermoplastics that must be considered for use in 3D printing
- Material, design, and process specifics of thermoplastics for successful processing
- Support materials, multi-material processes, fiber-reinforced components
- Bio-based or biodegradable thermoplastics, recycling of thermoplastics
- Recommendations for occupational safety, environmental protection, and product safety

Numerous practical examples showing recommended combinations of plastics and additive manufacturing methods make this book an indispensable guide for all those who use 3D printing and need sound knowledge of materials selection for this purpose.

Injection Molding for Practitioners
ISBN: 978-1-56990-178-6
Pages: 264
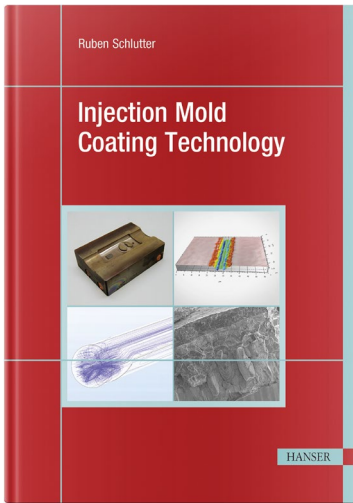Publication date: **July 2024**

Practical and easy to understand, this book describes the complete injection molding process

How exactly does injection molding work? How do you set up the machine optimally? How do you produce a high-quality injection molded part? The book conveys all of this in an easy-to-understand form.

The common special processes are described in detail and the necessary additional physical principles are explained. The chapter "Optimization of Quality" describes how quality can be documented and which tools are available for quality optimization. This also includes artificial intelligence (SPC, EVOP). The ever-more important topic of sustainability is also covered in a separate chapter.

Contents:
- The Injection Molding Process
- Technical Jargon
- Setting the Process Variables
- Plastic Properties Relevant to Injection Molding
- Special Injection Molding Processes
- Optimization of Quality
- Sustainability in Injection Molding
- Procedure for Standardized Presetting of an Injection Molding Machine
- Further Reading

Injection Mold Coating Technology

ISBN: 978-1-56990-266-0
Pages: **346**
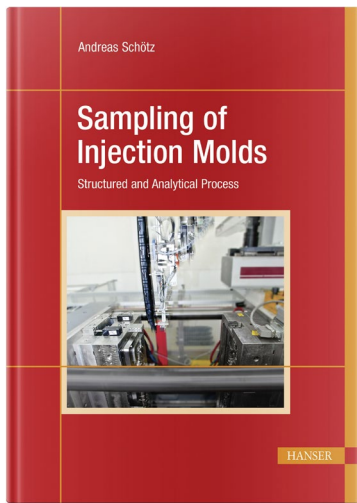Publication date: **July 2024**

Unique coverage of an important aspect of injection mold design

This book closes a fundamental gap in the field of mold design. The use of injection molding coatings extends the technical possibilities in the field of plastics production, such as the achievable flow path length, the use of abrasive and corrosive plastics, and the achievable tool life. This possibility of functionalization has so far been somewhat neglected due to a lack of available information on the state of the art and possible applications. This book therefore brings together the available knowledge of various experts in a way that is understandable for engineering students and tool and mold makers.

The book covers the individual steps of coating technologies. First, the steel materials that are mainly used for the construction of tools in plastics processing are presented. This is followed by the current status of the various coating technologies. The existing coating technologies are presented and characterized with regard to their suitability for use in tool technology in the plastics processing environment. The third part deals with the characterization of the deposited coatings. On the one hand, the focus is on the characterization of the actual coating, such as chemical composition, coating layout and coating thickness. Secondly, the measurement methods for determining the functional properties of the deposited coatings, such as hardness and wear resistance, thermal properties, thermal conductivity and tribological properties, are presented. Finally, the use of appropriate coatings is illustrated using practical examples from plastics technology.

Contents:
- Introduction
- Tool Steels and Their Coatability
- Fundamentals of Coating Technologies
- Measurement Technology for Coating Characterization
- Application of Functional Coatings

Sampling of Injection Molds
Structured and Analytical Process
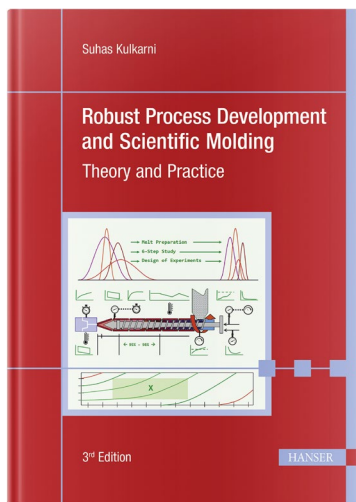**ISBN:** 978-1-56990-196-0
Pages: 200
Publication date: **October 2024**

This is the first book focusing on the subject of injection mold sampling

A standardized, structured, and systematic procedure for sampling injection molds is essential for a successful injection molding process. This work provides everything you need to know, guiding you from the placing of an order for a mold sampling to the transfer to series production. With the complete sequence of the individual sampling steps, lots of background information, notes, practical examples and tips, and a colorful, well-illustrated design, the sampling procedure is conveyed in a reader-friendly way.

The main topics covered are the structured procedure of a mold sampling, taking into account energy efficiency, documentation, and communication; a mold sampling analysis; optimum machine setup using strategic procedures and methods on the injection molding machine; process optimization with subsequent investigation of process capability; and a Run@Rate process.

This book is ideally suited for practical users working at the injection molding machine as well as serving as a textbook at vocational schools, further education institutions, and universities.

Robust Process Development and Scientific Molding
Theory and Practice
3rd editon
ISBN: 978-1-56990-908-9
Pages: 442
Publication date: **August 2024**

Bestselling introduction to the concepts of Scientific Molding and Scientific Processing for Injection Molding

This book introduces the reader to the concepts of Scientific Molding and Scientific Processing for Injection Molding, geared towards developing a robust, repeatable, and reproducible (3Rs) molding process. It explains the underlying principles of polymer science: the properties that are important to injection molding and their application to molding process development. The effects of polymer morphology, thermal transitions, drying, and rheology on the injection molding process are explained in detail. The development of a robust molding process is broken down into two sections: the Cosmetic Process and the Dimensional Process. Scientific molding procedures to establish a 3R process are provided.

The concept of Design of Experiments (DOEs) for and in injection molding is explained, giving insight into the cosmetic and dimensional process windows. A plan to release qualified molds into production with troubleshooting tips is also provided. Topics that impact a robust process such as the use of regrind, mold cooling, and venting are also described.

Readers will be able to utilize the knowledge gained from the book in their day-to-day operations immediately.

This third edition includes a completely new subchapter covering melt preparation, as well as much additional, revised, and updated material throughout the book. The revisions are deeply informed by the author's long and ongoing experience as a trainer, resulting in improved ways to conduct a study, perform experiments, or explain a concept.