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Computer Science, Computer Engineering and Information Technology

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Computer Science, Computer Engineering and Information Technology

Algorithms

BASU

Design Methods and Analysis of Algorithms, 2nd ed.

S.K. BASU, *Professor, Department of Computer Science, Banaras Hindu University.*

The design of correct and efficient algorithms for problem solving lies at the heart of computer science. This concise text, without being highly specialized, teaches the skills needed to master the essentials of this subject. With clear explanations and engaging writing style, the book places increased emphasis on algorithm design techniques rather than programming in order to develop in the reader the problem-solving skills.

The treatment throughout the book is primarily tailored to the curriculum needs of B.Tech students in computer science and engineering, B.Sc. (Hons.) and M.Sc. students in computer science, and MCA students.

The book focuses on the standard algorithm design methods and the concepts are illustrated through representative examples to offer a reader-friendly text. Elementary analysis of time complexities is provided for each example-algorithm. A varied collection of exercises at the end of each chapter serves to reinforce the principles/methods involved.

NEW TO THIS EDITION

- Additional problems
- A new Chapter 14 on Bioinformatics Algorithms
- The following new sections:
  - BSP model (Chapter 0)
  - Some examples of average complexity calculation (Chapter 1)
  - Amortization (Chapter 1)
  - Some more data structures (Chapter 1)
  - Polynomial multiplication (Chapter 2)
  - Better-fit heuristic (Chapter 7)
  - Graph matching (Chapter 9)
  - Function optimization, neighbourhood annealing and implicit elitism (Chapter 12)
- Additional matter in Chapter 15 and Appendix

Contents: List of Figures. List of Tables. Preface. Preface to the First Edition. Acknowledgements. Computational Models. Basics of Algorithm. Divide and Conquer. Greedy Method. Dynamic Programming. Further Divide and Conquer. A Bit of Theory. Approximation Algorithms. Randomized Algorithms. Graph Algorithms. Backtracking, Branch and Bound. Lower Bound Techniques. Genetic Algorithms. Parallel Algorithms. Bioinformatics Algorithms. Conclusion. Appendix. Bibliography. Index.

Latest Print 2013 / 396 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4746-5 / ₹ 350.00 / (e-book also available)

CHANDRA MOHAN

Design and Analysis of Algorithms, 2nd ed.

I. CHANDRA MOHAN *was Professor and Head, Department of Mathematics, S.V. University, Tirupati.*

This book, on Design and Analysis of Algorithms, in its second edition, presents a detailed coverage of the time complexity of algorithms. In this edition, a number of chapters have been modified and updated with new material. It discusses the various design factors that make one algorithm more efficient than others, and explains how to devise the new algorithms or modify the existing ones.

The book begins with an introduction to algorithm analysis and then presents different methods and techniques—divide and conquer methods, the greedy method, search and traversal techniques, backtracking methods, branch and bound methods—used in the design of algorithms. Each algorithm that is written in this book is followed first by a detailed explanation and then is supported by worked-out examples. The book contains a number of figures to illustrate the theoretical aspects and also provides chapter-end questions to enable students to gauge their understanding of the underlying concepts. What distinguishes the text is its compactness, which has been achieved without sacrificing essential subject matter.

This text is suitable for a course on "Design and Analysis of Algorithms", which is offered to the students of B.Tech (Computer Science and Engineering) and undergraduate and postgraduate students of computer science and computer applications [BCA, MCA, B.Sc. (CS), M.Sc. (CS)] and other computer-related courses.

NEW TO THIS EDITION

- Explains in detail the time complexity of the algorithms for the problem of finding the GCD and matrix addition.

- Covers the analysis of Knapsack and Combinatorial Search and Optimization problems.
- Illustrates the "Branch-and-Bound" method with reference to the Knapsack problem.
- Presents the theory of NP-Completeness.

Contents: Preface. Preface to the First Edition. Acknowledgements. Fundamentals. Divide-and-Conquer Methods. The Greedy Method. Set Manipulation Algorithms. Dynamic Programming. Search and Traversal Techniques. Backtracking Methods. Branch and Bound Methods. Algebraic Simplification and Transformation. Lower Boundary Theory and NP-Hard and NP-Complete Problems. Index.

Latest Print 2012 / 200 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4575-1 / ₹ 195.00 / (e-book also available)

CORMEN, et al.

Introduction to Algorithms, 3rd ed.

THOMAS H. CORMEN, *Professor of Computer Science & former Director, Institute for Writing and Rhetoric at Dartmouth College.*
CHARLES E. LEISERSON, *Professor of Computer Science and Engineering, at Massachusetts Institute of Technology.*
RONALD L. RIVEST, *Andrew and Erna Viterbi Professor, Electrical Engineering and Computer Science at Massachusetts Institute of Technology.*
CLIFFORD STEIN, *Professor, Industrial Engineering and Operations Research at Columbia University.*

This internationally acclaimed textbook provides a comprehensive introduction to the modern study of computer algorithms. It covers a broad range of algorithms in depth, yet makes their design and analysis accessible to all levels of readers. Each chapter is relatively self-contained and presents an algorithm, a design technique, an application area, or a related topic. The algorithms are described and designed in a manner to be readable by anyone who has done a little programming. The explanations have been kept elementary without sacrificing depth of coverage or mathematical rigor.

The third edition has been revised and updated throughout. It includes two completely new chapters, on van Emde Boas trees and multithreaded algorithms, and substantial additions to the chapter on recurrences

(now called "Divide-and-Conquer"). It features improved treatment of dynamic programming and greedy algorithms and a new notion of edge-based flow in the material on flow networks. Many new exercises and problems have been added in this edition.

The text is intended primarily for students studying algorithms or data structures. As it discusses engineering issues in algorithm design, as well as mathematical aspects, it is equally well suited for self-study by technical professionals.

Introduction to Algorithms, the 'bible' of the field, is a comprehensive textbook covering the full spectrum of modern algorithms: from the fastest algorithms and data structures to polynomial-time algorithms for seemingly intractable problems, from classical algorithms in graph theory to special algorithms for string matching, computational geometry, and number theory. The revised third edition notably adds a chapter on van Emde Boas trees, one of the most useful data structures, and on multithreaded algorithms, a topic of increasing importance.

—DANIEL SPIELMAN
Department of Computer Science, Yale University

Contents: Preface. I: Foundations—Introduction. The Role of Algorithms in Computing. Getting Started. Growth of Functions. Divide-and-Conquer. Probabilistic Analysis and Randomized Algorithms. II: Sorting and Order Statistics—Introduction. Heapsort. Quicksort. Sorting in Linear Time. Medians and Order Statistics. III: Data Structures—Introduction. Elementary Data Structures. Hash Tables. Binary Search Trees. Red-Black Trees. Augmenting Data Structures. IV: Advanced Design and Analysis Techniques—Introduction. Dynamic Programming. Greedy Algorithms. Amortized Analysis. V: Advanced Data Structures—Introduction. B-Trees. Fibonacci Heaps. Van Emde Boas Trees. Data Structures for Disjoint Sets. VI: Graph Algorithms—Introduction. Elementary Graph Algorithms. Minimum Spanning Trees. Single-Source Shortest Paths. All-Pairs Shortest Paths. Maximum Flow. VII: Selected Topics—Introduction. Multithreaded Algorithms. Matrix Operations. Linear Programming. Polynomials and the FFT. Number-Theoretic Algorithms. String Matching. Computational Geometry. NP-Completeness. Approximation Algorithms. VIII: Appendix: Mathematical Background—Introduction. A: Summations. B: Sets, Etc. C: Counting and Probability. D: Matrices. Bibliography. Index.

Latest Print 2016 / 1312 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4007-7 / ₹ 1695.00

DORIGO & STÜTZLE

Ant Colony Optimization

MARCO DORIGO *is research director of IRIDA lab at the Universite Libre de Bruxelles and the inventor of the ant colony optimization metaheuristic for combinatorial optimization problems.*
THOMAS STÜTZLE *is Assistant Professor in the Computer Science Department at Darmstadt University of Technology.*

This book introduces the rapidly growing field of ant colony optimization. It gives a broad overview of many aspects of ACO, ranging from a detailed description of the ideas underlying ACO, to the definition of how ACO can generally be applied to a wide range of combinatorial optimization problems, and describes many of the available ACO algorithms and their main applications.

The book first describes the translation of observed ant behaviour into working optimization algorithms. The ant colony metaheuristics is then introduced and viewed in the general context of combinatorial optimization. This is followed by a detailed description and guide to all major ACO algorithms and a report on current

theoretical findings. The book surveys ACO applications now in use, including routing, assignment, scheduling, subset, machine learning, and bioinformatics problems. AntNet, an ACO algorithm designed for network routing problem, is described in detail. Each chapter ends with bibliographic material, bullet points setting out important ideas covered in the chapter, and exercises.

The book is intended primarily for (1) academic and industry researchers in operations research, artificial intelligence, and computational intelligences; (2) practitioners willing to learn how to implement ACO algorithms to solve combinatorial optimization problems; and (3) graduate and postgraduate students in computer science, management studies, operations research, and artificial intelligence.

Contents: Preface. Acknowledgments. From Real to Artificial Ants. The Ant Colony Optimization Metaheuristic. Ant Colony Optimization Algorithms for the Traveling Salesman Problem. Ant Colony Optimization Theory. Ant Colony Optimization for *NP*-Hard Problems. AntNet: An Algorithm for Data Network Routing. Conclusions and Prospects for the Future. Appendix. References. Index.

Latest Print 2015 / 320 pp. (Hard Cover) / 17.8 × 23.5 cm
ISBN-81-203-2684-9 / ₹ 450.00

GUPTA, et al.

Design and Analysis of Algorithms, 2nd ed.

PRABHAKAR GUPTA, *Professor and Dean (Academics) at Shri Ram Murti Smarak College of Engineering and Technology (SRMSCET), Bareilly (UP).*

VINEET AGARWAL, *Professor, Computer Science and Engineering, Rakshapal Bahadur College of Engineering and Technology, Bareilly.*

MANISH VARSHNEY, *Associate Professor and Head of Computer Science & Engineering Department at Shri Siddhi Vinayak Institute of Technology, Bareilly.*

This well organized text provides the design techniques of algorithms in a simple and straight forward manner. It describes the complete development of various algorithms along with their pseudo-codes in order to have an understanding of their applications.

The book begins with a description of the fundamental concepts and basic design techniques of algorithms. Gradually, it introduces more complex and advanced topics such as dynamic programming, backtracking and various algorithms related to graph data structure. Finally, the text elaborates on NP-hard, matrix operations and sorting network.

Primarily designed as a text for undergraduate students of Computer Science and Engineering and Information Technology (B.Tech., Computer Science, B.Tech. IT) and postgraduate students of Computer Applications (MCA), the book would also be quite useful to postgraduate students of Computer Science and IT (M.Sc., Computer Science; M.Sc., IT).

NEW TO THIS SECOND EDITION

- A new section on Characteristics of Algorithms (Section 1.3) has been added
- Five new sections on Insertion Sort (Section 2.2), Bubble Sort (Section 2.3), Selection Sort (Section 2.4), Shell Sort/Diminishing Increment Sort/Comb Sort (Section 2.5) and Merge Sort (Section 2.6) have been included
- A new chapter on Divide and Conquer (Chapter 5) has also been incorporated

Contents: Preface. Preface to the First Edition. Acknowledgements. Introduction to Algorithms. Sorting and Order Statistics. Elementary Data Structure. Advanced Data Structure. Divide and Conquer. Advanced Design and Analysis Techniques—Part I. Advanced Design and Analysis Techniques—Part II. Graph. Pattern Matching Algorithms. NP-Completeness. Glossary. References. Index.

Latest Print 2012 / 424 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4663-5 / ₹ 350.00 / (e-book also available)

KABAT

Design and Analysis of Algorithms

MANAS RANJAN KABAT, *Reader and Head, Department of Computer Science and Engineering, VSS University of Technology, Burla, Odisha.*

Primarily designed as a text for undergraduate students of computer science and engineering and information technology, and postgraduate students of computer applications, the book would also be useful to postgraduate students of computer science and IT (M.Sc., Computer Science; M.Sc., IT). The objective of this book is to expose students to basic techniques in algorithm design and analysis.

This well organized text provides the design techniques of algorithms in a simple and straightforward manner. Each concept is explained with an example that helps students to remember the algorithm devising techniques and analysis. The text describes the complete development of various algorithms along with their pseudo-codes in order to have an understanding of their applications. It also discusses the various design factors that make one algorithm more efficient than others, and explains how to devise the new algorithms or modify the existing ones.

KEY FEATURES

- Randomized and approximation algorithms are explained well to reinforce the understanding of the subject matter.
- Various methods for solving recurrences are well explained with examples.
- NP-completeness of various problems are proved with simple explanation.

Contents: Preface. Acknowledgements. Introduction: Design and Analysis of Algorithm. Solving Recurrences. Fundamentals of Data Structures. Search Trees. Analysis of Searching and Sorting. Greedy Method.

Dynamic Programming. Backtracking. Branch and Bound Technique. Polynomials and Matrices. Amortized Analysis. String-Matching Algorithms. Computational Geometric Algorithms. NP-Complete Problems. Randomized and Approximation Algorithm. Bibliography. Index.

Latest Print 2013 / 356 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4806-6 / ₹ 295.00 / (e-book also available)

PANNEERSELVAM

Design and Analysis of Algorithms, 2nd ed.

R. PANNEERSELVAM, *Professor of operations and systems, and Head of Department of Management Studies, School of Management, Pondicherry University. He has been the Chairman of Computer Society of India (Pondicherry Chapter).*

This highly structured text, in its second edition, provides comprehensive coverage of design techniques of algorithms. It traces the complete development of various algorithms in a stepwise approach followed by their pseudo-codes to build an understanding of their applications in practice. With clear explanations, the textbook intends to be much more comprehensive book on design and analysis of algorithm. Commencing with the introduction, the book gives a detailed account of graphs and data structure. It then elaborately discusses the matrix algorithms, basic algorithms, network algorithms, sorting algorithm, backtracking algorithms and search algorithms. The text also focuses on the heuristics, dynamic programming and meta heuristics. The concepts of cryptography and probabilistic algorithms have been described in detail. Finally, the book brings out the underlying concepts of benchmarking of algorithms and algorithms to schedule processor(s).

NEW TO THE SECOND EDITION

- New chapters on
  - o Matrix algorithms
  - o Basic algorithms
  - o Backtracking algorithms
  - o Complexity of algorithms
- Several new sections including asymptotic notation, amortized analysis, recurrences, balanced trees, skip list, disjoint sets, maximal flow algorithm, parsort, radix sort, selection sort, topological sorting/ordering, median and ordered statistics, Huffman coding algorithm, transportation problem, heuristics for scheduling, etc., have been incorporated into the text.

This text is designed for the students of B.Tech and M.Tech (Computer Science and Engineering, and Information technology), MCA. and M.Sc. (Computer Science and Information Technology). It would also be useful to the undergraduate students of electronics and electrical engineering, where a course in algorithm is prescribed, and the students of Ph.D. programmes involving algorithmic researches of different engineering disciplines.

Contents: Preface. Introduction. Graphs. Data Structure. Distance-Based Network Algorithms. Search Algorithms. Sorting Algorithms. Heuristics. Meta-Heuristics. Cryptography. Probabilistic Algorithms. Dynamic Programming. Benchmarking of Algorithms. Algorithms to Schedule Processor(s). Miscellaneous Algorithms. Bibliography. Index.

Latest Print 2015 / 640 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5164-6 / ₹ 575.00 / (e-book also available)

Neural Networks/Fuzzy Logic/ Soft Computing/Artificial Intelligence

AKERKAR

Introduction to Artificial Intelligence, 2nd ed.

RAJENDRA AKERKAR, *Professor of Information Technology at Western Norway Research Institute, Norway.*

This comprehensive text acquaints the readers with the important aspects of artificial intelligence (AI) and intelligent systems and guides them towards a better understanding of the subject.

The text begins with a brief introduction to artificial intelligence, including application areas, its history and future, and programming. It then deals with symbolic logic, knowledge acquisition, representation and reasoning. The text also lucidly explains AI technologies such as computer vision, natural language processing, pattern recognition and speech recognition. Topics such as expert systems, neural networks, constraint programming and case-based reasoning are also discussed in the book.

In the **Second Edition**, the contents and presentation have been improved thoroughly and in addition six new chapters providing a simulating and inspiring synthesis of new artificial intelligence and an appendix on AI tools have been introduced.

The treatment throughout the book is primarily tailored to the curriculum needs of B.E./B.Tech. students in Computer Science and Engineering, B.Sc. (Hons.) and M.Sc. students in Computer Science, and MCA students. The book is also useful for computer professionals interested in exploring the field of artificial intelligence.

KEY FFEATURES

- Exposes the readers to real-world applications of AI.
- Concepts are duly supported by examples and cases.
- Provides appendices on PROLOG, LISP and AI Tools.
- Incorporates most recommendations of the Curriculum Committee on Computer Science/Engineering for AI and Intelligent Systems.
- Exercises provided will help readers apply what they have learned.

Contents: Preamble. Overview of Artificial Intelligence. Symbolic Logic. Knowledge Acquisition and Representation. Reasoning and KRR Systems. Uncertainty. Search Techniques. AI Technologies. Expert Systems. Neural Networks. Case-Based Reasoning. Constraint Programming.

Intelligent Agents. Planning. Soft Computing. Robotics. Machine Learning. Intelligent Systems. Applications of Artificial Intelligence. Appendices—A: Projects. B: PROLOG. C: LISP. D: AI Tools. Glossary. Bibliography. Index.

Latest Print 2014 / 440 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4997-1 / ₹ 425.00 / (e-book also available)

ERMINE

Expert Systems: Theory and Practice

JEAN-LOUIS ERMINE, *Senior Lecturer, University of Bordeaux, France.*

This book, an English translation of the original French version, provides an insight into the theory and practical applications of expert systems. It introduces expert systems by defining their functionalities and their architecture, and gives new mathematical model applied to several typical problems in systems like chaining, uncertain reasoning and consistency of knowledge-base. The text-matter is class tested, and in fact it is the result of the author's classroom lectures to the students. Examples from the real-life experiences are presented; concepts are defined as precisely as possible and integrated in the general structure.

The approach of the book is pedagogical, but at the same time the required rigour is present in the book to have a unified version of different concepts.

The last part of the book gives a new approach to some points of Knowledge Representation through *semiotics,* an emerging sub-field of Artificial Intelligence.

What is scattered in bits and pieces in many other books can be found in this comprehensive yet compact volume.

Contents: Foreword. Part I: Introduction to Expert Systems—Introduction. Expert Systems: Utilization and Functionality. Architecture of Expert Systems. Two Examples. Knowledge Representation. Bibliography. Part II: Semantics of Expert Systems—Introduction. Knowledge Base and Chaining Functions. Modelling of Uncertain Reasoning. Coherence of Knowledge Base. Reductions of Sets of Rules. Bibliography. Part III: Semiotic Theory and Knowledge Representation—Introduction. Syntactic-Semantic Analysis Discursive Grammar. The Semiotic Square. Analyse Actantielle: Narrative Grammar. Applications of Semiotic Theory of Artificial Intelligence. Bibliography. References.

Latest Print 2005 / 192 pp. / 16.0 × 24.1 cm
ISBN-81-203-0919-7 / ₹ 125.00

GANESH

Introduction to Fuzzy Sets and Fuzzy Logic

M. GANESH, *Professor, Mathematics Department, Birla Institute of Technology and Science (BITS), Pilani.*

Reflecting the tremendous advances that have taken place in the study of fuzzy set theory and fuzzy logic, this book not only details the theoretical advances in these areas, but also considers a broad variety of applications of fuzzy sets and fuzzy logic.

This comprehensive and up-to-date text is organized in three parts. The concepts pertaining to the "crisp" situation such as Set Theory, Logic, Switching Function Theory and Boolean Algebra are covered in Part I of the text. Part II is devoted to Fuzzy Set Theory, Fuzzy Relations and Fuzzy Logic. The applications of fuzzy set theory and fuzzy logic to Control Theory and Decision Making are designated Part III of the text.

Designed as a textbook for the undergraduate and postgraduate students of Science and Engineering, the book will also be immensely useful to practicing engineers and computer scientists.

KEY FEATURES

- Every concept has been illustrated with worked out examples.
- Fuzzy concepts have been introduced as generalizations and extensions of crisp concepts.
- Each chapter concludes with Problem Set and References.

Contents: Preface. Acknowledgements. How to Use This Book. Part I: Classical Theories—Crisp Set Theory. Propositional Logic. Predicate Logic. Switching Functions and Switching Circuits. Boolean Algebra. Part II: Fuzzy Theories—Fuzzy Set Theory. Fuzzy Relations. Fuzzy Logic. Part III: Applications—Fuzzy Methods in Control Theory. Fuzzy Methods in Decision Making. Index.

Latest Print 2014 / 256 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2861-7 / ₹ 225.00 / (e-book also available)

HASSOUN

Fundamentals of Artificial Neural Networks

MOHAMAD H. HASSOUN, *Associate Professor, Department of Electrical and Computer Engineering, Wayne State University.*

As book review editor of the *IEEE Transactions on Neural Networks*, Mohamad Hassoun has had the opportunity to assess the multitude of books on artificial neural networks that have appeared in recent years. Now, in *Fundamental of Artificial Neural Networks,* he provides the first systematic account of the artificial neural network paradigms by identifying clearly the fundamental concepts and major methodologies that underlie most of the current theory and practice employed by neural network researchers. This text emphasizes the fundamental theoretical aspects of the computational capabilities and the learning abilities of artificial neural networks.

The text assumes that the reader is conversant with the concept of a system and the notion of a "state", as well as with the basic elements of Boolean algebra and switching theory.

Contents: Preface. Acknowledgment. Abbreviations. Symbols. Threshold Gates. Computational Capabilities of Artificial Neural Networks. Learning Rules. Mathematical

Theory of Neural Learning. Adaptive Multilayer Neural Networks I. Adaptive Multilayer Neural Networks II. Associative Neural Memories. Global Search Methods for Neural Networks. References. Index.

Latest Print 2015 / 540 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-1356-9 / ₹ 595.00

KOSKO

Fuzzy Engineering (with CD-ROM)

BART KOSKO, *Director, Signal and Image Processing Institute, University of Southern California.*

Written by one the top figures in this rapidly emerging field, this book introduces an important new framework for fuzzy systems and applies it to several engineering applications.

Broad in scope, this is a must-read for anyone doing research or applications. Applications reach far beyond the usual fuzzy applications to control. Each chapter starting with a tutorial overview, presents new research results, and ends with detailed problems. Specific discussion is dedicated to fuzzy function approximation, fuzzy chaos and control, fuzzy signal processing, fuzzy communication, fuzzy hardware, computing in fuzzy cubes, and feedback in fuzzy cubes.

The book is useful for undergraduate and postgraduate students of Computer Science and Engineering.

Contents: Preface. Part I: Introduction—Fuzzy Logic and Engineering. Part II: Fuzzy Function Approximation—Additive Fuzzy Systems. Ellipsoidal Fuzzy Systems. Part III: Fuzzy Control and Chaos—Fuzzy Control for Platoons of Smart Cars. Fuzzy Chaos and Recursive Partitioning. Part IV: Fuzzy Signal Processing—Fuzzy Filters for Impulsive Noise. Fuzzy Subband Image Coding. Part V: Fuzzy Communication—Adaptive Fuzzy Frequency Hopping for Spread Spectrum. Fuzzy Signal Detection in Impulsive Noise. Part VI: Fuzzy Hardware—Adaptive VLSI Additive Fuzzy Systems. Optical Additive Fuzzy Systems. Part VII: Computing in Fuzzy Cubes—Fuzzy Cubes and Fuzzy Mutual Entropy. Adaptive Subsethood for Radial Basis Fuzzy Systems. Part VIII: Feedback in Fuzzy Cubes—Fuzzy Adaptive Resonance Theory. Virtual Worlds in Fuzzy Cognitive Maps. A: How To Use The Fuzzy Software. Index. List of Contributors.

Latest Print 2015 / 576 pp. / 17.8 x 23.5 cm
ISBN-978-81-203-5053-3 / ₹ 550.00

KOSKO

Neural Networks and Fuzzy Systems: A Dynamical Systems Approach to Machine Intelligence (with CD-ROM)

BART KOSKO, *Director, Signal and Image Processing Institute, University of Southern California.*

The text combines the related fields of neural networks and fuzzy systems—from the theoretical level of first principles and the applications level of the new adaptive fuzzy systems in control and signal processing. The book develops neural networks as both trainable dynamical systems and stochastic gradient systems, focusing on principles of learning, self-organization and stability.

KEY FEATURES

- Presents the new geometric theory of fuzzy sets as points in hyperubes and fuzzy systems as parallel associative reasoning systems—"principle-based" systems—generated from expert advice or training data.
- Shows how to generate structured fuzzy systems with unsupervised or supervised neural networks.
- Shows how to convert neural networks to structured fuzzy systems.
- Includes detailed theoretical and software homework problems.
- Reviews all required mathematics from matrix algebra and probability theory to dynamical systems.

Contents: Foreword by Lotfi A. Zadeh. Foreword by James A. Anderson. Preface. Neural Networks and Fuzzy Systems. NEURAL NETWORK THEORY: Neuronal Dynamics I: Activations and Signals. Neuronal Dynamics II: Activation Models. Synaptic Dynamics I: Unsupervised Learning. Synaptic Dynamics II: Supervised Learning. Architectures and Equilibria. ADAPTIVE FUZZY SYSTEMS: Fuzziness Versus Probability. Fuzzy Associative Memories. Comparison of Fuzzy and Neural Truck Backer-Upper Control Systems. Fuzzy Image Transform Coding. Comparison of Fuzzy and Kalman-Filter Target-Tracking Control Systems. Appendix: Neural and Fuzzy Software Instructions. Index.

Latest Print 2016 / 480 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-0868-8 / ₹ 425.00

KULKARNI & JOSHI

Artificial Intelligence

PARAG KULKARNI, *CEO and Chief Scientist, EKLaT Research.*

PRACHI JOSHI, *Associate Professor, Department of Computer Engineering, MIT College of Engineering, Pune.*

There has been a movement over the years to make machines intelligent. With the advent of modern technology, AI has become the core part of day-to-day life. But it is accentuated to have a book that keeps abreast of all the state-of-the-art concepts (pertaining to AI) in simplified, explicit and elegant way, expounding on ample examples so that the beginners are able to comprehend the subject with ease.

The book on *Artificial Intelligence,* dexterously divided into 21 chapters, fully satisfies all these pressing needs. It is intended to put each and every concept related to intelligent system in front of the readers in the most simplified way so that while understanding the basic concepts, they will develop thought process that can contribute to the building of advanced intelligent systems.

Various cardinal landmarks pertaining to the subject such as problem solving, search techniques, intelligent agents, constraint satisfaction problems, knowledge representation, planning, machine learning, natural language processing, pattern recognition, game playing, hybrid and fuzzy systems, neural network-based learning and future work and trends in AI are now under the single umbrella of this book, thereby showing a nice blend of theoretical and practical aspects.

With all the latest information incorporated and several pedagogical attributes included, this textbook is an invaluable learning tool for the undergraduate and post-graduate students of computer science and engineering, and information technology.

KEY FEATURES

- Highlights a clear and concise presentation through adequate study material
- Follows a systematic approach to explicate fundamentals as well as recent advances in the area
- Presents ample relevant problems in the form of multiple choice questions, concept review questions, critical thinking exercise and project work
- Incorporates various case studies for major topics as well as numerous industrial examples

Contents: Preface. Introduction to Artificial Intelligence. Problem Solving. Uninformed Search. Informed Search. Intelligent Agent. Constraint Satisfaction Problems. Knowledge and Reasoning. Uncertain knowledge and reasoning. Planning. Learning. Expert Systems. Natural Language Processing. Decision Theory. Pattern Recognition. Game Playing. Perception and action. Neural Network based Learning. Fuzzy and Hybrid Intelligent Systems. AI Applications. Concluding Remarks: AI—Present and Future. Advance topics in Artificial Intelligence. Appendices. Bibliography. Index.

Latest Print 2015 / 528 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5046-5 / ₹ 425.00 / (e-book also available)

MISHRA

Artificial Intelligence

R.B. MISHRA, *Professor, Department of Computer Engineering, Institute of Technology, Banaras Hindu University, Varanasi.*

This book has been written keeping in view the requirements of undergraduate and postgraduate students and research scholars in the area of computer science and engineering in particular, and other branches of engineering which deal with the study of AI such as electronics engineering, electrical engineering, industrial engineering (robotics and FMS). Besides the engineering students, the postgraduate students of computer science and computer applications and cognitive sciences researchers can equally benefit from this text.

The basic concepts of artificial intelligence, together with knowledge representation, reasoning methods, acquisition, management and distributed architecture, have been nicely and instructively described. The various application domains and disciplines in engineering, management, medicine which cover different aspects of design, assembly and monitoring, have been presented with utility aspects of AI concepts in logic and knowledge.

The book maintains a simple and comprehensible style of presentation for the different categories of readers such as students, researchers and professionals for their respective uses.

Contents: Preface. Introduction. Logic and Computation. Heuristic Search. Search in Game Playing. AI Languages. Knowledge Representation. Automated Reasoning. Probabilistic Reasoning. Knowledge Acquisition: Machine Learning. Multi-agent Systems. User Interface. Knowledge Based Systems. Knowledge Discovery: Data and Web Mining. Web Technology, Semantic Web and Knowledge Management. Natural Language Processing. Development, Selection and Evaluation. Software Engineering and AI. AI in Medicine. Industrial Automation: FMS and Robotics. Electronics Communication. Management and Business Intelligence. References. Index.

Latest Print 2013 / 520 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3849-4 / ₹ 375.00 / (e-book also available)

RAJASEKARAN & PAI

Neural Networks, Fuzzy Logic, and Genetic Algorithms: Synthesis and Applications (with CD-ROM)

S. RAJASEKARAN, *Professor Emeritus, Department of Civil Engineering, PSG College of Technology, Coimbatore.*
G.A. VIJAYALAKSHMI PAI, *Sr. Lecturer, Computer Applications, PSG College of Technology, Coimbatore.*

This book provides comprehensive introduction to a consortium of technologies underlying soft computing, an evolving branch of computational intelligence. The constituent technologies discussed comprise neural networks, fuzzy logic, genetic algorithms, and a number of hybrid systems which include classes such as neuro-fuzzy, fuzzy-genetic, and neuro-genetic systems. The hybridization of the technologies is demonstrated on architectures such as Fuzzy-Back-propagation Networks (NN-FL), Simplified Fuzzy ARTMAP (NN-FL), and Fuzzy Associative Memories. The book also gives an exhaustive discussion of FL-GA hybridization.

Every architecture has been discussed in detail through illustrative examples and applications. The algorithms have been presented in pseudo-code with a step-by-step illustration of the same in problems. The applications, demonstrative of the potential of the architectures, have been chosen from diverse disciplines of science and engineering.

This book with a wealth of information that is clearly presented and illustrated by many examples and applications is designed for use as a text for courses in soft computing at both the senior undergraduate and first-year postgraduate engineering levels. It should also be of interest to researchers and technologists desirous of

applying soft computing technologies to their respective fields of work.

Contents: Foreword. Preface. Introduction to Artificial Intelligence Systems. Part I: Neural Networks—Fundamentals of Neural Networks. Backpropagation Networks. Associative Memory. Adaptive Resonance Theory. Part II: Fuzzy Logic—Fuzzy Set Theory. Fuzzy Systems. Part III: Genetic Algorithms—Fundamentals of Genetic Algorithms. Genetic Modelling. Part IV: Hybrid Systems—Integration of Neural Networks, Fuzzy Logic and Genetic Algorithms. Genetic Algorithm based Backpropagation Network. Fuzzy Backpropagation Network. Simplified Fuzzy ARTMAP. Fuzzy Associative Memories. Fuzzy Logic Controlled Genetic Algorithms. Word Index. Author Index.

Latest Print 2015 / 456 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2186-1 / ₹ 350.00

SHINGHAL

Introduction to Fuzzy Logic

RAJJAN SHINGHAL, *formerly Professor of Computer Science, Concordia University, Montreal, Canada.*

Designed primarily as a text for senior undergraduate students of Computer Science and Engineering, and postgraduate students of Mathematics and Applied Mathematics, this compact book describes the theoretical aspects of fuzzy set theory and fuzzy logic.

Based on his many years of experience, Professor Rajjan Shinghal gives a succinct analysis of the procedures for fuzzy sets complementation, intersection, and union. He also explains clearly how arithmetic operations are carried out on approximate numbers, how fuzzy sets are used for reasoning, and how they are employed for unsupervised learning. Finally, the book shows how fuzzy sets are utilized in applications such as logic control, databases, information retrieval, ordering of objects, and satisfying multiple goals.

Besides students, professionals working in research organizations should find the book quite useful.

Contents: Preface. An Overview of Crisp Sets. Basics of Fuzzy Sets. Developing Membership Functions. Complement of a Fuzzy Set. Intersection and Union of Fuzzy Sets. Fuzzy Arithmetic with Extension Principle. Fuzzy Arithmetic with Interval Analysis. Fuzzy Relations for Mapping of Fuzzy Sets. Defuzzification. Approximate Reasoning: Modus Ponens. Approximate Reasoning: Modus Tollens. Fuzzy Clustering. Fuzzy Logic Applications. Bibliography. Index.

Latest Print 2013 / 144 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4699-4 / ₹ 150.00 / (e-book also available)

VINOD CHANDRA & HAREENDRAN

Artificial Intelligence and Machine Learning

VINOD CHANDRA S.S., *Director, Computer Centre, University of Kerala, Thiruvananthapuram.*

ANAND HAREENDRAN S., *is associated with Department of Computer Science and Engineering, College of Engineering, Kulathoor, Sreekaryam, Trivandrum.*

Primarily intended for the undergraduate and post-graduate students of computer science and engineering, this text bridges the gaps in knowledge of the seemingly difficult areas of artificial intelligence and machine learning.

This book promises to provide the most number of case studies and worked out examples than any other of its genre. The text is written in a highly interactive manner which makes for an avid reading. More into the text, the contents are well placed that it takes off from the introduction to AI, which is followed by heuristics searching and game playing. The machine learning section begins with the basis of learning, and the various association rule learning algorithms. Various types of learning like, reinforced, supervised, unsupervised and statistical are also included with numerous case studies and application exercises. The well explained algorithms and pseudo codes for each topic make this book useful for students.

KEY FEATURES

- Includes Case studies for each machine learning algorithm
- Incorporates day to day examples and pictorial representations for a deeper understanding of the subject
- Helps students to create programs easily

Contents: Preface. Acknowledgements. Introduction. Heuristic Search Techniques. Game Playing. Knowledge Representation. Knowledge Representation Structures. Reasoning. Learning. Association Learning. Clustering. Reinforcement Learning. Statistical Learning. Artificial Neural Nets. Supervised Learning. Unsupervised Learning. Expert Systems. Index.

Latest Print 2014 / 368 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4934-6 / ₹ 450.00 / (e-book also available)

YEGNANARAYANA

Artificial Neural Networks

B. YEGNANARAYANA, *Professor, Department of Computer Science and Engineering, Indian Institute of Technology Madras.*

This self-contained introductory text explains the basic principles of computing with models of artificial neural networks, which the students with a background in basic engineering or physics or mathematics can easily understand. Besides students, practising engineers and research scientists would also cherish this book which

treats the emerging and exciting area of artificial neural networks with the following distinguishing features:

KEY FEATURES

- Principles of neural networks are explained without presuming any prior knowledge of the subject.
- While pattern processing features of the neural networks are emphasised, the pattern recognition tasks used in problem solving by human beings are identified.
- Analysis of pattern recognition tasks are presented in detail by basic topologies of artificial neural networks.
- Includes real-world applications of neural networks in speech and image processing.
- The text discusses the following topics from first principles:
  - Activation and synaptic dynamics
  - Learning laws for feedforward neural networks
  - Analysis of feedback neural networks
  - Competitive learning networks
  - Architectures for complex pattern recognition tasks
  - Applications in speech and image processing.

Contents: Preface. Acknowledgements. Introduction. Basics of Artificial Neural Networks. Activation and Synaptic Dynamics. Functional Units of ANN for Pattern Recognition Tasks. Feedforward Neural Networks. Feedback Neural Networks. Competitive Learning Neural Networks. Architectures for Complex Pattern Recognition Tasks. Applications of ANN. Appendices—A: Features of Biological Neural Networks through PDP Models. B: Mathematical Preliminaries. C: Basics of Gradient Descent Methods. D: Generalization in Neural Networks: An Overview. E: Principal Component Neural Networks: An Overview. F: Current Trends in Neural Networks. Bibliography. Author Index. Subject Index.

Latest Print 2014 / 476 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-1253-1 / ₹ 325.00 / (e-book also available)

Automata/Theory of Computer Science

GHOSH

Introduction to Theory of Automata, Formal Languages, and Computation, An

DEBIDAS GHOSH, *Professor of Computer Science and Engineering (CSE) Department, National Institute of Technology (NIT), Durgapur.*

The Theory of Computation or Automata and Formal Languages assumes significance as it has a wide range of applications in complier design, robotics, Artificial Intelligence (AI), and knowledge engineering. This compact and well-organized book provides a clear analysis of the subject with its emphasis on concepts which are reinforced with a large number of worked-out examples.

The book begins with an overview of mathematical preliminaries. The initial chapters discuss in detail about the basic concepts of formal languages and automata, the finite automata, regular languages and regular expressions, and properties of regular languages. The text then goes on to give a detailed description of context-free languages, pushdown automata and computability of Turing machine, with its complexity and recursive features. The book concludes by giving clear insights into the theory of computability and computational complexity.

This text is primarily designed for undergraduate (BE/B. Tech.) students of Computer Science and Engineering (CSE) and Information Technology (IT), postgraduate students (M.Sc.) of Computer Science, and Master of Computer Applications (MCA).

SALIENT FEATURES

- One complete chapter devoted to a discussion on undecidable problems.
- Numerous worked-out examples given to illustrate the concepts.
- Exercises at the end of each chapter to drill the students in self-study.
- Sufficient theories with proofs.

Contents: Preface. Acknowledgements. Preliminary Mathematical Review. Three Basic Concepts: Grammar, Languages and Automata. Finite Automata. Regular Languages and Regular Grammars. Properties of Regular Languages. Context-Free Languages. Pushdown Automata. Properties of Context-Free Languages. Turing Machine. Other Models of Turing Machines. Hierarchy of Formal Languages and Linear Bounded Automata. Undecidability. Theory of Computability. Computational Complexity. Index.

Latest Print 2013 / 260 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4807-3 / ₹ 250.00 / (e-book also available)

MISHRA & CHANDRASEKARAN

Theory of Computer Science (Automata, Languages and Computation), 3rd ed.

K.L.P. MISHRA, *Formerly Professor, Department of Electrical and Electronics Engineering, and Principal, Regional Engineering College, Tiruchirapalli.*
N. CHANDRASEKARAN, *Professor of Mathematics, St. Joseph's College, Tiruchirapalli.*

This Third Edition, in response to the enthusiastic reception given by academia and students to the previous edition, offers a cohesive presentation of all aspects of theoretical computer science, namely **automata**, **formal languages**, **computability**, and **complexity**. Besides, it includes coverage of mathematical preliminaries.

NEW TO THIS EDITION

- Expanded sections on pigeonhole principle and the principle of induction (both in Chapter 2)
- A rigorous proof of Kleene's theorem (Chapter 5)
- Major changes in the chapter on Turing machines (TMs)
  – A new section on high-level description of TMs

– Techniques for the construction of TMs
– Multitape TM and nondeterministic TM
- A new chapter (Chapter 10) on decidability and recursively enumerable languages
- A new chapter (Chapter 12) on complexity theory and NP-complete problems
- A section on quantum computation in Chapter 12.

KEY FEATURES

- Objective-type questions in each chapter—with answers provided at the end of the book.
- Eighty-three additional solved examples—added as Supplementary Examples in each chapter.
- Detailed solutions at the end of the book to chapter-end exercises.

The book is designed to meet the needs of the undergraduate and postgraduate students of computer science and engineering as well as those of the students offering courses in computer applications.

Contents: Preface. Notations. Propositions and Predicates. Mathematical Preliminaries. The Theory of Automata. Formal Languages. Regular Sets and Regular Grammars. Context-Free Languages. Push-down Automata. LR(*k*) Grammars. Turing Machines and Linear Bounded Automata. Decidability and Recursively Enumerable Languages. Computability. Complexity. Answers to Self-Tests. Solutions (or Hints) to Chapter-end Exercises. Further Reading. Index.

Latest Print 2016 / 436 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-2968-3 / ₹ 275.00 / (e-book also available)

Bioinformatics

BHATIA

Medical Informatics

DINESH BHATIA, *Associate Professor and Head of Biomedical Engineering Department, North Eastern Hill University (NEHU), Shillong, Meghalaya.*

This is an up-to-date text that presents a detailed exposition of the concepts of Medical Informatics with a simple and student-friendly approach. The topics are comprehensively described and are supported with illustrations, figures and tables which make it a unique offering for both—the students and the teachers. The author has brought all his teaching and research experience to make this book easy to read and understand. The stress is mainly given on the integration of medical informatics in healthcare management, in the context of Indian scenario.

The book emphasizes the role of computers in the area of medical services including nursing, clinical care, dentistry, pharmacy, public health and biomedical research. The main focus in healthcare nowadays is given to create, maintain and manage large and complex electronic information data that can securely gather, store, transfer and make accessible Electronic Health Records (EHRs) and Electronic Medical Records (EMRs). The book, organized in an easy-to-read style is highly informative, and attempts to keep up with the quick pace of changes in this field.

The book is primarily designed for the undergraduate and postgraduate students of biomedical engineering and paramedical courses. It will also be of great value to the healthcare professionals.

REVIEWERS' COMMENTS

Medical Informatics has revolutionised the field of medical science. It is at the crossroads of information technology, computer science and healthcare. With the advent of technology, computers have become a part of every field of human sphere by playing different roles with effective and efficient performance. The author has done a commendable job by organising a huge knowledge of the field in a simple and easy-to-understand format. The book will be useful for engineering graduates, paramedical interns and healthcare professionals working in the field. Congratulations to the author and the publisher for producing a weighty, authoritative, readable, and attractive book in the subject. I hope the book will be received gladly by the intended audience, who will find it useful in their pursuit of knowledge of healthcare informatics.

Dr. U. SINGH, *Professor and Head, Physical Medicine Rehabilitation Department, All India Institute of Medical Sciences (AIIMS), Delhi*

Medical Informatics focuses on the role of computers in the area of medical services. The author with dedication, passion and teaching experience, has undertaken the difficult task of presenting concepts in a logical and lucid manner. The book thrives on the conceptual knowledge, required to comprehend and understand the subject, by way of illustrations and examples showing how computers assist in the delivery of healthcare to the masses on a daily basis. I congratulate the author and the publisher for bringing out this book and enriching the field further.

Prof. VINOD KUMAR, *Dean Faculty Affairs and Professor in Electrical Engineering Indian Institute of Technology (IIT) Roorkee*

Contents: List of Figures. List of Tables. Foreword. Preface. Acknowledgements. Introduction to Medical Informatics. Management of Medical Data. Security Issues. Applications of Computers in Medical Field. Basics of Telemedicine. Computers and Artificial Intelligence. Reference List. Index.

Latest Print 2015 / 168 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5075-5 / ₹ 195.00 / (e-book also available)

RASTOGI, MENDIRATTA & RASTOGI

Bioinformatics: Methods and Applications: Genomics, Proteomics and Drug Discovery, 4th ed.

S.C. RASTOGI, *formerly Professor and Head, Biological Sciences Group at Birla Institute of Technology and Science (BITS), Pilani.*

NAMITA MENDIRATTA, *Vice-President, IL&FS Technologies, New Delhi.*

PARAG RASTOGI, *has worked in industry in various capacities in IT and consulting.*

Designed as a text for students and professionals pursuing careers in the fields of molecular biology, pharmacy and bioinformatics, the fourth edition continues to offer a fascinating and authoritative treat-ment of the entire spectrum of bioinformatics, covering a wide range of high-throughput technologies. In this edition, four new chapters are included and two chapters are updated.

As a student-friendly text, it embodies several pedagogic features such as detailed examples, chapter-end problems, numerous tables, a large number of diagrams, flow charts, a comprehensive glossary and an up-to-date bibliography. This book should prove an invaluable asset to students and researchers in the fields of bioinfor-matics, biotechnology, computer-aided drug design, information technology, medical diagnostics, molecular biology and pharmaceutical industry.

Contents: Preface. Preface to the First Edition. Bioinformatics: An Introduction. Introduction to Biological Database. Information Search and Data Retrieval. Genome Analysis and Gene Mapping. Alignment of Pairs of Sequences. Alignment of Multiple Sequences and Phylogenetic Analysis. Introduction to Phylogenetics. Methods of Phylogenetric Analysis. Tools for Similarity Search and Sequence Alignment. Profiles and Hidden Markov Models. Gene Identification and Prediction. RNA Structure Prediction. Gene Expression and Microarrays. Protein Classification and Structure Visualization. Protein Structure Prediction. Proteomics. Computational Methods for Pathways and Systems Biology. Introduction to Drug Discovery. Drug Discovery: Technology and Strategies. Cell Cycle: Key to Drug Discovery. Structural Biology and Virtual Screening for Drug Discovery. Emerging Role of Biomarkers in Drug Development. G-Protein Coupled Receptors as Drug Targets. Ion Channels and Aquaporins as Potential Drug Targets. Computer-aided Drug Design. Problem Sets. Multiple Choice Questions. Glossary. Bibliography. Index.

Latest Print 2013 / 648 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4785-4 / ₹ 475.00 / (e-book also available)

Business Analysis

PENDSE

Business Analysis: Solving Business Problems by Visualizing Effective Processes and IT Solutions, 2nd ed.

PRADEEP HARI PENDSE *is presently at the Welingkar Institute of Management Development & Research, Mumbai.*

The second edition of this book is a response to the fact that today BAs are expected to not merely help in gathering requirement for software, but solve real-world business problems, act as design thinkers and innovators, architects, drive process, and business transformation, and become 'trusted advisors' to managements—while leveraging their core strength in Information Technology. If the earlier edition was the first book on the subject—this edition takes the subject to the next level by preparing a BA to become a design thinker!

An architect/design thinker usually views any problem from multiple perspectives. This edition, has therefore, been structured such that most of the chapters represent a distinct view-point about a problem space, business area or a process. Divided into five sections, the book delves onto three important aspects of Business Analysis—Processes, Information and Systems.

The external enterprise context, competitiveness and strategy; internal enterprise context; flow perspective; information perspective; decision/business rules perspective; dynamic perspective; innovation and human perspective and technology perspective are some of the key view-points described in the chapters. Each of these perspectives are covered by way of conceptual framework, real-life illustrations and practical tips for a BA.

With the help of a comprehensive cases, this edition guides the BA to synthesize these discrete perspectives, and propose meaningful solutions to the organization. In doing this, the book also explains the core artifacts which a BA produces, viz. Requirements Documents, Estimation and Business Cases.

The book is designed for the aspiring Business Analysts and IT Managers/CIOs. Besides, the book will be equally beneficial for the students opting for the courses on MIS, Systems Analysis and Design, MBA, MCA and Business Process Analysis.

Contents: Preface. Acknowledgements. How To Use This Book? Section 1: Context and Frameworks—Business Analyst: The Changing Context and Its Evolving Role. Frameworks for Business Analysis. Section 2: Core Perspectives of a Business Process—The Customer's Perspective. The Flow Perspective. The Information Perspective. Decision and Business Rules Perspective. Dynamic Behaviour of a Business Processes. Compliance, Quality, Security and Other Perspectives. Section 3: Innovation, Strategy and Solution—Visualizing an IT-Based

Solution: The Solution Perspective. Innovation Perspective. Enterprise Perspective I: Business Strategy and Enterprise Architecture. Enterprise Perspective II: Information and IT Strategy. Section 4: Consolidating the Requirements and Synthesis—Outcomes of Business Analysis: Consolidation and Synthesis. Business Analysis Case Study. Section 5: Business Analysis Practice Areas—Evolving Role of a Business Analysis and Practice Areas. Suggested Readings.

Latest Print 2015 / 224 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-5138-7 / ₹ 275.00 / (e-book also available)

CBSE

BHATNAGAR

Textbook of Computer Science for Class XI

SEEMA BHATNAGAR, *Principal of Delhi Public School Panipat City, Panipat.*

This textbook, presented in a clear and friendly writing style, provides students of Class XI with a thorough introduction to the discipline of computer science. It offers accurate and balanced coverage of all the computer science topics as prescribed in the CBSE syllabus Code 083.

Assuming no previous knowledge of computer science, this book discusses key computing concepts to provide invaluable insight into how computers work. It prepares students for the world of computing by giving them a solid foundation in programming concepts, operating systems, problem solving methodology, C++ programming language, data representation, and computer hardware.

KEY FEATURES

- Explains theory in user friendly and easy-to-approach style
- Teaches C++ from scratch; knowledge of C is not needed
- Provides **Programming Examples**
- Gives **Practical Exercise**
- Provides **Answers** to **Short Questions**
- Gives **Practice Questions** at the end of each chapter
- Suitable for **Self-Study**

Contents: Preface. Computer Fundamentals. Use of Operating System: MS-DOS. Software Concepts. Windows Operating System. General Programming Concepts. Problem Solving: Methodology and Concepts. Programming by Examples in C++ Language. Using Turbo C++. Standard Input–Output Operations from C Language. Data Types, Variables and Constants. Operators and Expressions. Control Statements: Selective Execution. Control Statements: Repeated Execution. Arrays. Built-in Functions. User-defined Functions. Event Programming. Data Presentation: Number Systems and Character Encoding. Microprocessor. CPU and Memory. Input–Output Ports and Power Supply. Appendices—A. List of Keywords in C++. B. Operator Precedence. C. List of Header Files and Functions. Index.

Latest Print 2007 / 604 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2993-5 / ₹ 195.00

BHATNAGAR

Textbook of Computer Science for Class XII

[Written in Accordance with CBSE Syllabus for Board Examination to be Held in 2009 and 2010]

SEEMA BHATNAGAR, *Principal of Delhi Public School Panipat City, Panipat.*

This textbook is a sequel to the *Textbook of Computer Science for Class XI*. It is written in a simple, direct style for maximum clarity. It comprehensively covers the Class XII CBSE syllabus of Computer Science (subject code 083). The goal of the book is to develop the student's proficiency in fundamentals and make the learning process creative, engrossing and interesting. There are practice exercises and questions throughout the text, designed on the pattern of sample question papers published by CBSE.

The approach of this book is to teach the students through extensive "skill and drill" type exercises in order to make them **high-ranking achievers** in the Board examinations.

KEY FEATURES

- Provides accurate and balanced coverage of topics as prescribed in the CBSE syllabus code 083.
- Builds a solid programming foundation in C++.
- Students can prepare a Practical File with solved programming examples given in the text.
- End-of-chapter questions help teachers prepare assignments for self-practice by the students.
- End-of-chapter Programming Exercises help students in preparing for the Board practical examination.
- Solved questions at the end of each chapter prepare students for the Board theory examination.

For further guidance on how to use this book effectively, e-mail the author using **seema_591@rediffmail.com**

Contents: Preface. C++ Revision Tour. Structures. Object-oriented Programming. Classes and Objects. Constructors and Destructors. Inheritance. Data File Handling. Pointers. Arrays. Stacks and Queues. Database Concepts. Structured Query Language. Boolean Algebra. Communications and Open Source Technologies.

Latest Print 2008 / 736 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3518-9 / ₹ 250.00

Cloud Computing

DAS GUPTA, et al.

Cloud Computing-based Projects Using Distributed Architecture (with CD-ROM)

PRANAB KUMAR DAS GUPTA, *Senior Scientist in Defence Research and Development Organization (DRDO). Presently he is Joint Director in Computer and Communication Wing at Proof and Experimental Establishment, Chandipur.*

MANOJRANJAN NAYAK, *President and Founder of the Siksha 'O' Anusandhan University, Bhubaneswar, Odisha.*

SABYASACHI PATTNAIK, *Professor in the Department of Information and Communication Technology at Fakir Mohan University, Balasore, Odisha.*

Development of software projects is a part of the curriculum of undergraduate and postgraduate courses. The main objective of this book is to expose the students and professionals to the latest technology, relevant theory and software development tools.

This book serves as a guide to design and develop the cloud computing-based software projects using distributed architecture. It consolidates the theory, upcoming technologies and development tools for the development of two software projects—Outstation Claim Management System (OCMS) and Retirement Benefit Calculation System (RBCS). Both the projects start with the feasibility study to understand and appreciate the problem. After understanding the problem and identifying the suitable software, hardware and network environment, the problem is formally depicted using the entity relationship model and data flow diagrams. This is followed by normalization, creation of tables and procedures. In the book, Oracle, PL/SQL, Internet Developer Suite (IDS) and .Net framework are used to develop the full-fledged GUI-based applications. The book elaborates the problem, providing logic and interface screens to design and develop the projects using any other programming language and GUI tool in which the students are comfortable with.

The book also includes a CD-ROM, which contains the source codes of OCMS and RBCS.

The book is meant for the undergraduate and postgraduate students of Computer Science, Computer Applications and Information Technology. Besides, it would also be useful to the professionals to enhance their technical skills.

After going through this book, the students/professionals will be able to:

- Work on real-life projects.
- Implement the SDLC in software projects.
- Design the data flow diagrams and entity relationship diagrams.
- Use the database and normalization in software projects.
- Do the corrective, adaptive and perfective maintenance of a software.
- Learn the concepts related to IaaS, PaaS and SaaS of Cloud Computing.

Contents: Preface. Acknowledgements. Cloud Computing and Related Concepts—An Overview. Feasibility Study and System Analysis Understanding Outstation Claim Management System (OCMS). System Design: Exploring OCMS. Coding, Testing and Implementation: OCMS Framework and Procedures. Coding, Testing and Implementation: OCMS Graphical User Interface—Basic. Coding, Testing and Implementation: OCMS Graphical User Interface—Advance. Coding, Testing and Implementation: OCMS Reports. Feasibility Study and System Analysis Understanding Retirement Benefit Calculation System (RBCS). System Design: Exploring RBCS. Coding, Testing and Implementation: RBCS Graphical User Interface—Basic. Coding, Testing and Implementation: RBCS Graphical User Interface—Advance. Software Maintenance, Documentation and Quality Management. Index.

Latest Print 2013 / 340 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4671-0 / ₹ 425.00

PACHGHARE

Cloud Computing

V.K. PACHGHARE, *Associate Professor in the Department of Computer Engineering and Information Technology, College of Engineering, Pune (An autonomous institute of Government of Maharashtra).*

This well-organized book presents the principles, techniques, design, and implementation of cloud computing, with a perfect balance in the presentation of theoretical and practical aspects. The book, after providing a brief introduction to the subject, gives a clear analysis of different cloud computing models and explains all the relevant concepts on virtualization, security issues and challenges in cloud computing. In addition to this, the book introduces the reader with some of the prominent cloud service provider companies like Amazon, Microsoft and Google, and discusses the various features of these web services. Further, to provide the necessary background required to understand the principles of cloud computing, the roadmap for migration of application to cloud and roles of different standards used for cloud computing are discussed in detail. The discussion ends after addressing mobile cloud computing and microservices—the recent advances in cloud computing.

The book is primarily intended for the undergraduate and postgraduate students of computer science and engineering, and information technology.

KEY FEATURES

- Focuses more on the applications and security aspects
- Incorporates exercises at the end of each chapter
- Provides live examples and large number of diagrams for illustrations

Contents: Preface. Cloud Computing—An Overview. Cloud Computing Architecture. Virtualization in Cloud. Security Issues and Challenges in Cloud Computing.

Security Management. Virtualization System Specific Attacks. Web Services. Data Security and Privacy. Service Oriented Architecture. Migrating Applications to the Cloud Computing. Cloud Computing Applications. Standards in Cloud Computing. Mobile Cloud Computing. Microservices. Index.

Latest Print 2015 / 312 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5213-1 / ₹ 350.00 / (e-book also available)

PRABHU
Grid and Cluster Computing

C.S.R. PRABHU, *Director General (Retd.), National Informatics Centre (NIC), New Delhi.*

Grid Computing and Cluster Computing are advanced topics and latest trends in computer science that find a place in the computer science and information technology curricula of many engineering institutes and universities today. Divided into two parts—Part I, Grid Computing and Part II, Cluster Computing—, this compact and concise text strives to make the concepts of grid computing and cluster computing comprehensible to the students through its fine presentation and accessible style. Part I of the book enables the student not only to understand the concepts involved in grid computing but also to build their own grids for specific applications.

Similarly, as today supercomputers are being built using cluster computing architectures, Part II provides an insight into the basic principles involved in cluster computing and equips the readers with the knowledge to build their own clusters in-house.

Diagrams are used to illustrate the concepts discussed and to enable the reader to actually construct a grid or a cluster himself.

The book is intended as a text for undergraduate and postgraduate students of computer science and engineering, information technology (B.Tech./M.Tech. Computer Science and Engineering/IT), and postgraduate students of computer science/information technology (M.Sc. Computer Science and M.Sc. IT). Besides, practising engineers and computer science professionals should find the text very useful.

Contents: Preface. Part I: Grid Computing—Introduction. Technologies and Architectures for Grid Computing. World Wide Grid Computing Activities, Organizations and Projects. Web Services and the Service Oriented Architecture (SOA). OGSA and WSRF. Globus Toolkit. The Grid and the Databases. Part II: Cluster Computing—What is Cluster Computing? Cluster Middleware: An Introduction. Early Cluster Architectures and High Throughput Computing Clusters. Networking, Protocols and I/O for Clusters. Setting Up and Administering a Cluster. Cluster Technology for High Availability. Performance Models and Simulation. Process Scheduling. Load Sharing and Load Balancing. Distributed Shared Memory. Case Studies of Cluster Systems: Beowulf, COMPaS, NanOS and PARAM. Index.

Latest Print 2015 / 256 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3428-1 / ₹ 295.00 / (e-book also available)

RAO
Cloud Computing

M.N. RAO, *Director and Professor of Research & Development Centre, CSE Department, SCET Engineering College.*

Cloud Computing has grown popular as a new prototype for providing services over the Internet.

This introductory textbook on Cloud Computing is suitable for undergraduate students of computer science engineering, and for postgraduate students of computer science and computer applications. It teaches both the basic concepts and cloud technologies by adopting a straightforward approach of presenting theoretical concepts and cloud models. Several Cloud providers of distinct types are discussed here with their advantages and disadvantages. Different cloud services are also covered in this book. The book advances on the cloud architecture and cloud examples that are latest in market.

SALIENT FEATURES

- Clear and concise explanations
- Discussion on cloud models with diagrams
- In-depth analysis of various cloud architectures
- Numerous case studies
- Several questions from previous question papers

Contents: Preface. Acknowledgements. Introducing to Cloud Computing. Cloud Models. Standards and Security. Cloud Licensing and Major Players. Cloud Services. Software Plus Services. Cloud Management. Virtualization for Cloud. Cloud Storage and Disaster Recovery. Cloud Collaboration. Examples of Cloud Computing. Index.

Latest Print 2015 / 204 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5073-1 / ₹ 250.00 / (e-book also available)

Compilers

CHATTOPADHYAY
Compiler Design

SANTANU CHATTOPADHYAY, *Professor, Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology Kharagpur.*

This well-designed text, which is the outcome of the author's many years of study, teaching and research in the field of Compilers, and his constant interaction with students, presents both the theory and design techniques used in Compiler Designing. The book introduces the readers to compilers and their design challenges and describes in detail the different phases of a compiler.

The book acquaints the students with the tools available in compiler designing. As the process of compiler designing essentially involves a number of subjects like Automata Theory, Data Structures, Algorithms, Computer Architecture, and Operating System, the contributions of these fields are also emphasized. Various types of parsers are elaborated starting with the simplest ones like recursive descent and LL to the most intricate ones

like LR, canonical LR, and LALR, with special emphasis on LR parsers.

Designed primarily to serve as a text for a one-semester course in Compiler Designing for undergraduate and postgraduate students of Computer Science, this book would also be of considerable benefit to the professionals.

KEY FEATURES

- This book is comprehensive yet compact and can be covered in one semester.
- Plenty of examples and diagrams are provided to help the readers assimilate the concepts with ease.
- The exercises given in each chapter provide ample scope for practice.
- Offers insight into different optimization trans-formations.
- Summary at end of each chapter enables the students to recapitulate the topics easily.

Contents: Preface**.** Acknowledgements. List of Figures. List of Tables. Introduction. Lexical Analysis. Syntax Analysis. Type Checking. Symbol Tables. Runtime Environ-ment Management. Intermediate Code Generation. Target Code Generation. Code Optimization. Bibliography. Index.

Latest Print 2015 / 244 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2725-2 / ₹ 225.00 / (e-book also available)

DAS

Compiler Design Using FLEX and YACC

VINU V. DAS, *Department of Computer Science and Engineering, MES College of Engineering, Kuttippuram, Kerala.*

This book is a comprehensive practical guide to the design, development, programming, and construction of compilers. It details the techniques and methods used to implement the different phases of the compiler with the help of FLEX and YACC tools. The topics in the book are systematically arranged to help students understand and write reliable programs in FLEX and YACC. The uses of these tools are amply demonstrated through more than a hundred solved programs to facilitate a thorough understanding of theoretical implementations discussed.

KEY FEATURES

- Discusses the theory and format of Lex specifications and describes in detail the features and options available in FLEX.
- Emphasizes the different YACC programming strategies to check the validity of the input source program.
- Includes detailed discussion on construction of different phases of compiler such as *Lexical Analyzer*, *Syntax Analyzer*, *Type Checker*, *Intermediate Code Generation*, *Symbol Table*, and *Error Recovery*.
- Discusses the *Symbol Table* implementation—considered to be the most difficult phase to implement—in an utmost simple manner with examples and illustrations.
- Emphasizes *Type Checking* phase with illustrations.

The book is primarily designed as a textbook to serve the needs of B.Tech. students in computer science and engineering as well as those of MCA students for a course in Compiler Design Lab.

Contents: Preface. Acknowledgements. Introduction to Compiler Design. Lexical Analyzer. Programming with FLEX. Theory of FLEX. Syntax Analyzer. The YACC. Programming with YACC. Theory of YACC. Symbol Table and Type Checking. Intermediate Code Generation. Appendix A: Solutions to Selected Exer-cises. Appendix B: Combining YACC and FLEX. Index.

Latest Print 2008 / 276 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3251-5 / ₹ 225.00 / (e-book also available)

Computational Linguistics

AKSHAR BHARATI, CHAITANYA & SANGAL

Natural Language Processing: A Paninian Perspective

AKSHAR BHARATI*, is the personification of a group working on NLP at Indian Institute of Technology Kanpur*.
VINEET CHAITANYA, *Indian Institute of Technology Kanpur*.
RAJEEV SANGAL, *Professor of Computer Science and Engineering, Indian Institute of Technology Kanpur*.

This book is on Natural Language Processing presented with a Paninian perspective. *Panini* (circa 500 B.C.) was a grammarian and well known for his contribution to the grammar and structure of the language. In this book the reader is first introduced to Natural Language Processing and then to Paninian grammar and framework for processing of modern Indian languages using the computer. Thereafter, a comparison of Paninian grammar framework with that of modern western computational grammars is presented.

This book is useful for courses in *Computational Linguistics* in the linguistic departments, and for NLP in computer science departments.

KEY FEATURES

- This book is the first of its kind in presenting a comparison of Paninian Grammar (PG) with the existing modern western computational grammars.
- Introduces three western grammar frameworks using examples from English: Lexical Functional Grammar (LFG), Trees Adjoining Grammar (TAG), and Govern-ment and Binding (GB). The presentation does not assume any background on part of the reader regard-ing these frameworks.
- Each presentation also discusses either the applicability of the framework to *free word order* languages, or a comparison with PG framework.
- It is a single source in path-breaking research on Natural Language Processing using the classic and time-tested Paninian framework.

Contents: List of Figures. Preface. Acknowledgements. Introduction to NLP. Language Structure and Language

Analyzer. Words and Their Analyzer. Local Word Grouping. Paninian Grammar. Paninian Parser. Machine Translation. Lexical Functional Grammar. LFG and Indian Languages. Tree Adjoining Grammar. Comparing TAG with PG. Government and Binding. Comparing GB with PG. Appendices—A: Panini's Grammar and Sanskrit. B: Roman Notation for Devanagri. Bibliography. Index. Glossary.

Latest Print 2016 / 236 pp. / 15.3 × 22.9 cm
ISBN-978-81-203-0921-0 / ₹ 250.00 / (e-book also available)

MUKHERJI

Primacy of Grammar, The

NIRMALANGSHU MUKHERJI, *Professor of Philosophy, University of Delhi.*

Acquisition of language is a human biological endowment, and we know children have a natural disposition for mastering it. The biological side of language is the subject of increasing research. Biolinguists are interested in fundamental questions such as, whether speech and language are localized in the brain, how do encoding and decoding of speech and language function, and whether different components of language (syntax, phonology, semantics) are neuroanatomically distinct. Biolinguistics studies, the relationship between brain function and language. In other words, it is primarily concerned with grammars that represent the computational aspects of the mind/brain.

This book elegantly introduces the subject of biolinguistics. The author provides a lucid overview of Chomsky's contribution in biolinguistics and builds on it to offer a novel account of the nature of the human faculty of language. Hence, apart from topics internal to biolinguistics, this work touches on topics in the history and philosophy of science, epistemology, philosophy of language, philosophy of mind, and psychology of music, among others. In this content, the biolinguistic approach may ultimately lead to identification of a specific structure of mind.

The book is eminently suitable for courses offered in the departments of Linguistics/Computational Linguistics, Philosophy, Neuroscience, Psychology, and Languages at research level.

Contents: List of Figures. Abbreviations. Preface. The Loneliness of Biolinguistics. Linguistic Theory I. Grammar and Logic. Words and Concepts. Linguistic Theory II. Language and Music. A Joint of Nature. Notes. References. Index.

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ISBN-978-81-203-4257-6 / ₹ 295.00

Computer Architecture/ Computer Organization

GROOTE & MOUSAVI

Modeling and Analysis of Communicating Systems

JAN FRISO GROOTE, *Professor of Computer Science at the Eindhoven University of Technology, the Netherlands.*
MOHAMMAD REZA MOUSAVI, *Professor of Computer Systems Engineering at the Center for Research on Embedded Systems at Halmstad University, Sweden.*

Complex communicating computer systems—computers connected by data networks and in constant communication with their environments—do not always behave as expected. This book introduces behavioral modeling, a rigorous approach to behavioral specification and verification of concurrent and distributed systems. It is among the very few techniques capable of modeling systems interaction at a level of abstraction sufficient for the interaction to be understood and analyzed. Offering both a mathematically grounded theory and real-world applications, the book is suitable for classroom use by postgraduate students of Computer Science and as a reference for system architects.

The book covers the foundation of behavioral modeling using process algebra, transition systems, abstract data types, and modal logics. Exercises and examples augment the theoretical discussion. It introduces a modeling language, mCRL2, that enables concise descriptions of even the most intricate distributed algorithms and protocols. Using behavioral axioms and such proof methods as confluence, cones, and foci, readers will learn how to prove such algorithms equal to their specifications. Specifications in mCRL2 can be simulated, visualized, or verified against their requirements. An extensive mCRL2 toolset for mechanically verifying the requirements is freely available online; this toolset has been successfully used to design and analyze industrial software that ranges from healthcare applications to particle accelerators at CERN. Appendixes offer material on equations and notation as well as exercise solutions.

Solution Manual is available for adopting faculty.

This book offers an excellent coverage of the foundations behind data-enriched process algebra and modal μ-calculus aimed at the rigorous modeling and verification of distributed systems. This clearly written textbook contains targeted examples and exercises and is highly recommended for readers who want to get acquainted with modern concurrency theory.

—Joost-Pieter Katoen, RWTH Aachen University & University of Twente

mCRL2 is one of the most expressive and analytically powerful process-algebra-based tool sets currently available. With the publication of the wonderfully written *Modeling and Analysis of Communicating Systems*,

the tool set now has the comprehensive companion manuscript it deserves.

—**Scott A. Smolka**, Professor of Computer Science, Stony Brook University

Finally, the book that contains the full story of mCRL2, an extremely powerful specification formalism for concurrent, complex systems empowered by an extensive tool set. This book provides detailed and instructive information on the wide range of modeling and analysis possibilities of mCRL2 and is a must-read for anyone who cares about the correctness of computer systems.

—**Kim Guldstrand Larsen**, Professor of Computer Science, Aalborg University; coauthor of *Reactive Systems: Modelling, Specification and Verification*

Contents: Preface. Acknowledgments. I. **Modeling**—Introduction. Actions, Behavior, Equivalence, and Abstraction. Data Types. Sequential Processes. Parallel Processes. The Modal μ-calculus. Modeling System Behavior. Timed Process Behavior. **II. Analysis**—Basic Manipulation of Processes. Linear Process Equations and Linearization. Confluence and τ-prioritization. Cones and Foci. * Verification of Distributed Systems. Verification of Modal Formulas Using Parameterized Boolean Equation Systems. **III. Semantics**—Semantics. **IV. Appendixes**—A. Brief Tool Primer. B. Equational Definition of Built-In Data Types. C. Plain-Text Notation. D. Syntax of the Formalisms. E. Axioms for Processes. F. Answers to Exercises. Bibliography.

Latest Print 2015 / 392 pages / 20.0 × 25.0 cm
ISBN-978-81-203-5183-7 / ₹ 795.00

PAL CHAUDHURI
Computer Organization and Design, 3rd ed.

P. PAL CHAUDHURI, *Professor Emeritus at Cellular Automata Research Lab (CARL), a research lab established by Alumnus Software, Salt Lake, Kolkata.*

The merging of computer and communication technologies with consumer electronics has opened up new vistas for a wide variety of designs of computing systems for diverse application areas. This revised and updated third edition on Computer Organization and Design strives to make the students keep pace with the changes, both in technology and pedagogy in the fast growing discipline of computer science and engineering. The basic principles of how the intended behaviour of complex functions can be realized with the inter-connected network of digital blocks are explained in an easy-to-understand style.

WHAT IS NEW TO THIS EDITION

- Includes a new chapter on Computer Networking, Internet, and Wireless Networks.
- Introduces topics such as wireless input-output devices, RAID technology built around disk arrays, USB, SCSI, etc.

KEY FEATURES

- Provides a large number of design problems and their solutions in each chapter.
- Presents state-of-the-art memory technology which includes EEPROM and Flash Memory apart from Main Storage, Cache, Virtual Memory, Associative Memory, Magnetic Bubble, and Charged Couple Device.
- Shows how the basic data types and data structures are supported in hardware.

Besides students, practising engineers should find reading this design-oriented text both useful and rewarding.

Contents: Preface. Preface to the First Edition. Acknowledgements. Evolution of Computer Systems. Computer System Design: Hierarchical Levels. Information Representation. Central Processing Unit (CPU). Controller Design. Memory Subsystem. Secondary Storage. Input-output Devices. Input-Output Processing. Computer System Architecture. Computer networking, Internet, and Wireless Networks. Bibliography. Index.

Latest Print 2016 / 916 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3511-0 / ₹ 595.00 / (e-book also available)

RAJARAMAN & RADHAKRISHNAN
Computer Organization and Architecture

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

T. RADHAKRISHNAN, *Professor of Computer Science and Software Engineering, Faculty of Engineering at Concordia University, Montreal, Canada.*

Designed as an introductory text for the students of computer science, computer applications, electronics engineering and information technology for their first course on the organization and architecture of computers, this accessible, student friendly text gives a clear and in-depth analysis of the basic principles underlying the subject.

This self-contained text devotes one full chapter to the basics of digital logic. While the initial chapters describe in detail about computer organization, including CPU design, ALU design, memory design and I/O organization, the text also deals with Assembly Language Programming for Pentium using NASM assembler.

What distinguishes the text is the special attention it pays to Cache and Virtual Memory organization, as well as to RISC architecture and the intricacies of pipelining. All these discussions are climaxed by an illuminating discussion on parallel computers which shows how processors are interconnected to create a variety of parallel computers.

KEY FEATURES

- Self-contained presentation starting with data representation and ending with advanced parallel computer architecture.
- Systematic and logical organization of topics.
- Large number of worked-out examples and exercises.
- Contains basics of assembly language programming.

- Each chapter has learning objectives and a detailed summary to help students to quickly revise the material.

Contents: Preface. Computer Systems—A Perspective. Data Representation. Basics of Digital Systems. Arithmetic and Logic Unit–I. Arithmetic Logic Unit–II. Basic Computer Organization. Central Processing Unit. Assembly Language Level View of Computer System. Memory Organization. Cache and Virtual Memory. Input-Output Organization. Advanced Processor Architectures. Parallel Computers. Appendix A: Decision Table Terminology. Appendix B: Preparation, Programming and Developing an Assembly Language Program. References. Index.

Latest Print 2014 / 508 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3200-3 / ₹ 350.00 / (e-book also available)

RAJARAMAN & RADHAKRISHNAN

Introduction to Digital Computer Design, An, 5th ed.

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

T. RADHAKRISHNAN, *Professor of Computer Science and Software Engineering, Faculty of Engineering at Concordia University, Montreal, Canada.*

This well-received book, now in **fifth** edition, has been thoroughly revised and updated with new material on CMOS gates, MSI/ALU and Pentium5 architecture. The chapter on Cache and Virtual Memory has been rewritten. A new chapter on Parallel Computers has been added.

The first part of the book is devoted to digital techniques used in the design of digital circuits and small digital systems. The second part deals with logical organization and architecture of computers. It also describes a small hypothetical computer to illustrate how instruction sets are evolved. Real computers (namely, Pentium and MIPs machines) are described and compared with the hypothetical computer. The remainder of this part describes I/O devices, cache and virtual memory and parallel computers.

The book does not assume extensive knowledge of electronics or mathematics. A knowledge of programming in C or Java would be useful to give the student a proper perspective to appreciate the development of the subject. This textbook is suitable for B.Sc. (Electronics) and B.Tech. courses. Both the parts of the book are self-contained and may be used independently, if appropriate.

Contents: Preface. PART I: DIGITAL TECHNIQUES AND DESIGN—Data Representation. Arithmetic Operations. An Algebra for Digital Systems. Combinatorial Switching Circuits. Sequential Switching Circuits. Selected Examples of Digital Systems. Memory Organization. PART II: LOGICAL ORGANIZATION AND ARCHITECTURE—A Small Computer Organization. Central Processing Unit. Input-Output Devices. Input-Output Organization. Cache and Virtual Memory. Parallelism in Computing. Appendix: Decision Table Terminology. Index.

Latest Print 2015 / 524 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3409-0 / ₹ 395.00 / (e-book also available)

RAO

Computer System Architecture

P.V.S. RAO, *Formerly, Senior Professor and Head of the Computer Systems and Communications Group, Tata Institute of Fundamental Research (TIFR), Mumbai, is currently Adviser to Satyam Global Lifenet, Hyderabad.*

Intended as a text for undergraduate and postgraduate students of engineering in Computer Science and Engineering, Information Technology, and students pursuing courses in computer applications (BCA/MCA) and computer science (B.Sc./M.Sc.), this state-of-the-art study acquaints the students with concepts and implementations in computer architectures. Though a new title, it is a completely reorganized, thoroughly revised and fully updated version of the author's earlier book *Perspectives in Computer Architecture*.

The text begins with a brief account of the very early history of computers and describes the von Neumann IAS type of computers; then it goes on to give a brief introduction to the subsequent advances in computer systems covering device technologies, operational aspects, system organization and applications. This is followed by an analysis of the advances and innovations that have taken place in these areas. Advanced concepts such as look-ahead, pipelining, RISC architectures, and multi-programming are fully analyzed. The text concludes with a discussion on such topical subjects as computer networks, microprocessors and microcomputers, microprocessor families, Intel Pentium series, and newer high-power processors.

HALLMARKS OF THE BOOK

- The text fully reflects Professor P.V.S. Rao's long experience as an eminent academic and his professional experience as an adviser to leading telecommunications/ software companies.
- Gives a systematic account of the evolution of computers
- Provides a large number of exercises to drill the students in self-study.
- The five Appendices at the end of the text, cover the basic concepts to enable the students to have a better understanding of the subject.

Besides students, practising engineers should also find this book to be of immense value to them.

Contents: Preface. Stored Program Computers. The Basic Building Blocks of Digital Computers. The Arithmetic Unit. The Memory Unit. Input and Output Units. The Control Unit. Innovations in Arithmetic Units. Advances in Memory Systems. Innovations in Input and Output Units. Innovations in General Organisation and Control. Interrupts and Interrupt Operation. Look Ahead and

Pipelining. Trends in System Architecture. Multiprogramming and Time-Sharing. External and Internal Concurrency. Vector Processors, Array Processors and Supercomputers. Computer Networks. Microprocessors and Microcomputers. Microprocessor Families. The Pentium Series of Processors. The Newer High Power Processors. Appendices—1. Representation of Numbers in Computers. 2. Arithmetic Operations in Digital Computers. 3. Generations of Computers. 4. Machine Language and Assembly. 5. Data Flow. Index.

Latest Print 2011 / 520 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3594-3 / ₹ 325.00

Computer Networks/ Data Communication

GROOTE & MOUSAVI

Modeling and Analysis of Communicating Systems

JAN FRISO GROOTE, *Professor of Computer Science at the Eindhoven University of Technology, the Netherlands.*
MOHAMMAD REZA MOUSAVI, *Professor of Computer Systems Engineering at the Center for Research on Embedded Systems at Halmstad University, Sweden.*

Complex communicating computer systems—computers connected by data networks and in constant communication with their environments—do not always behave as expected. This book introduces behavioral modeling, a rigorous approach to behavioral specification and verification of concurrent and distributed systems. It is among the very few techniques capable of modeling systems interaction at a level of abstraction sufficient for the interaction to be understood and analyzed. Offering both a mathematically grounded theory and real-world applications, the book is suitable for classroom use by postgraduate students of Computer Science and as a reference for system architects.

The book covers the foundation of behavioral modeling using process algebra, transition systems, abstract data types, and modal logics. Exercises and examples augment the theoretical discussion. It introduces a modeling language, mCRL2, that enables concise descriptions of even the most intricate distributed algorithms and protocols. Using behavioral axioms and such proof methods as confluence, cones, and foci, readers will learn how to prove such algorithms equal to their specifications. Specifications in mCRL2 can be simulated, visualized, or verified against their requirements. An extensive mCRL2 toolset for mechanically verifying the requirements is freely available online; this toolset has been successfully used to design and analyze industrial software that ranges from healthcare applications to particle accelerators at CERN. Appendixes offer material on equations and notation as well as exercise solutions.

Solution Manual is available for adopting faculty.

This book offers an excellent coverage of the foundations behind data-enriched process algebra and modal μ-calculus aimed at the rigorous modeling and verification of distributed systems. This clearly written textbook contains targeted examples and exercises and is highly recommended for readers who want to get acquainted with modern concurrency theory.

—**Joost-Pieter Katoen,** RWTH Aachen University & University of Twente

mCRL2 is one of the most expressive and analytically powerful process-algebra-based tool sets currently available. With the publication of the wonderfully written *Modeling and Analysis of Communicating Systems*, the tool set now has the comprehensive companion manuscript it deserves.

—**Scott A. Smolka**, Professor of Computer Science, Stony Brook University

Finally, the book that contains the full story of mCRL2, an extremely powerful specification formalism for concurrent, complex systems empowered by an extensive tool set. This book provides detailed and instructive information on the wide range of modeling and analysis possibilities of mCRL2 and is a must-read for anyone who cares about the correctness of computer systems.

—**Kim Guldstrand Larsen**, Professor of Computer Science, Aalborg University; coauthor of *Reactive Systems: Modelling, Specification and Verification*

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Latest Print 2015 / 392 pages / 20.0 × 25.0 cm
ISBN-978-81-203-5183-7 / ₹ 795.00

GUPTA

Data Communications and Computer Networks, 2nd ed.

PRAKASH C. GUPTA *is a leading author and consultant on telecom networks. He was Deputy Director General, Department of Telecom, Head Data Networks, Reliance Communications, Head of Department (IT), Maharashtra Institute of Technology, Pune.*

Primarily intended as a text for undergraduate courses in Electronics and Communications Engineering, Computer Science, IT courses, and Computer Applications, this up-to-date and accessible text gives an indepth analysis

of data communications and computer networks in an easy-to-read style. Though a new title, it is a completely revised and fully updated version of the author's earlier book *Data Communications*. The rapid strides made during the last decade in the fields of data communication and networking, and the close link between these two subjects have prompted the author to add several chapters on computer networks in this text.

The book gives a masterly analysis of topics ranging from the principles of data transmission to computer networking applications. It also provides standard protocols, thereby enabling to bridge the gap between theory and practice. What's more, it correlates the network protocols to the concepts, which are explained with the help of **numerous examples** to facilitate students' understanding of the subject.

This well-organized text presents the **latest developments** in the field and details **current topics** of interest such as Multicasting, MPLS, IPv6, Gigabit Ethernets, IPSec, SSL, Auto-negotiation, Wireless LANs, Network security, Differentiated services, and ADSL.

Besides students, the practicing professionals would find the book to be a valuable resource.

The book, in its second edition introduces a full chapter on *Quality of Service*, highlighting the meaning, parameters and functions required for quality of service.

KEY FEATURES

- The book is self-contained and student friendly.
- The sequential organization lends flexibility in designing courses on the subject.
- Large number of examples, diagrams and tables illustrate the concepts discussed in the text.
- Numerous exercises (with answers), a list of acronyms, and references to protocol standards.

Contents: Preface. Data Communication Concepts and Terminology. Transmission Media. Telephone Network. Data Line Devices. Error Control. Network Architecture. The Physical Layer. The Data Link Layer. Data Link Protocols. Local Area Networks. IEEE 802.3 Ethernets. Token Passing Local Area Networks. Wireless Local Area Networks. Bridges and Layer-2 Switches. Network Layer. Virtual Circuit Packet Switching Network. Internet Protocol (IP). Routing Protocols. Multicasting and Multiprotocol Label Switching (MPLS). Transport Layer. Network Security. Application Layer. Quality of Service. Bibliography. Answers to Selected Exercises. List of Acronyms. Index.

Latest Print 2013 / 832 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4864-6 / ₹ 495.00 / (e-book also available)

KUNDU

Fundamentals of Computer Networks, 2nd ed.

SUDAKSHINA KUNDU, *Professor and Head, Department of Computer Science & Engineering, West Bengal University of Technology.*

Focused on fundamental concepts and practical applications, this book provides a strong foundation in the principles and terminology of computer networking and internet technology. This thoroughly revised **second edition**, incorporating some of the latest technical features in networking, is suitable for introductory one-semester courses for undergraduate students of computer science and engineering, electronics and telecommunication engineering, information technology, as well as students of computer applications (BCA and MCA).

This text begins with an overview of computer networking and a discussion on data communication. Then it proceeds to explain how computer networks such as local area networks (LANs) and wide area networks (WANs) work, and how internetworking is implemented. Besides, the book provides a description of the Internet and TCP/IP protocol. With the prolific growth of networking, 'network management and security' has become an increasingly important part of the academic curriculum. This topic has been adequately dealt with in a separate chapter. The practical aspects of networking, listing the essential requirements needed for actually setting up a computer network, are thoroughly explained in the final chapter of the book.

WHAT IS NEW IN THE SECOND EDITION

- Wireless LAN in Chapter 4
- API and Socket Programming and End-to-End Protocol in Chapter 7
- Remote Procedure Call (RPC) Protocol in Chapter 8
- Dynamic Host Configuration Protocol: Error reporting by ICMP, Virtual Private Network (VPN), Network Address Translation (NAT) in Chapter 9

An appendix dealing with telephone networking, wireless networking, cellular networking and satellite and telemetry communication has been included to meet the requirements of the students.

Contents: Preface. Computer Networking—An Overview. Electronic Communication of the Digital Data. Basic Principles of Networking of Computers. Transmission in Local Area Networks. Switching and Forwarding in Wide Area Networking. Internetworking. Internet and TCP/IP Protocol Suit. Network Applications. Network Management and Security. Setting up a Network. Appendix. Glossary. Index.

Latest Print 2009 / 300 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3452-6 / ₹ 225.00 / (e-book also available)

PAL

Data Communication and Computer Networks

AJIT PAL, *Professor, Department of Computer Science and Engineering, Indian Institute of Technology Kharagpur.*

Intended primarily as a textbook for the students of computer science and engineering, electronics and communication engineering, master of computer applications (MCA), and those offering IT courses, the book provides a comprehensive coverage of the subject. Basic elements of communication such as data, signal and channel alongwith

their characteristics such as bandwidth, bit internal and bit rate have been explained.

Contents related to guided and unguided transmission media, Bluetooth wireless technology, developed for Personal Area Network (PAN) and issues related to routing covering popular routing algorithms namely RIP, OSPF and BGP, have been introduced in the book.

Various aspects of data link control alongwith their application in HDLC network and techniques such as encoding, multiplexing and encryption/decryption are presented in detail. Characteristics and implementation of PSTN, SONET, ATM, LAN, PACKET RADIO network, Cellular telephone network and Satellite network have also been explained. Different aspects of IEEE 802.11 WLAN and congestion control protocols have also been discussed in the book.

Contents: Preface. Introduction. Data Communication Fundamentals. Data Link Control. Switched Communication Networks. Local Area Networks. High Speed LANs. Wireless Networks. Internetworking. Routing and Congestion Control. Network Security. Q-A Manual. References. Index.

Latest Print 2014 / 352 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4845-5 / ₹ 395.00 / (e-book also available)

SINGH

Data Communications and Computer Networks, 4th ed.

BRIJENDRA SINGH, *Professor and Head, Department of Computer Science, University of Lucknow.*

This fully revised and updated book, now in its Fourth Edition, continues to provide a comprehensive coverage of data communications and computer networks in an easy to understand style. The text places as much emphasis on the application of the concepts as on the concepts themselves. While the theoretical part is intended to offer a solid foundation of the basics so as to equip the student for further study, the stress on the applications is meant to acquaint the student with the realistic status of data communications and computer networks as of now.

Intended primarily as a textbook for the students of computer science and engineering, electronics and communication engineering, master of computer applications (MCA), and those offering IT courses, this book would also be useful for practising professionals.

NEW TO THIS EDITION

- Three new chapters on:
  - o Network Architecture and OSI Model
  - o Wireless Communication Technologies
  - o Web Security
- Appendix on Binary and Hexadecimal Numbering

KEY FEATURES

- Illustrates the application of the principles through highly simplified block diagrams.
- Contains a comprehensive glossary which gives simple and accurate descriptions of various terms.
- Provides Questions and Answers at the end of the book which facilitate quick revision of the concept.

Contents: Preface. Preface to the First Edition. Introduction. Network ArchitectureS and OSI Model. Communication Media and Data Transmission. Error Detection and Correction. Data Compression. Data Link Control and Protocol Concepts. Local Area Networks. Wide Area Networks. Integrated Services and Routing Protocols. Wireless LANs. Wireless Communication Technologies. Internetworking. TCP Reliable Transport Service. Network Applications. Network Management. Network Security. Web Security. Appendices—1: ASCII Code. 2: Binary and Hexadecimal Numbering. 3: Abbreviations and Acronyms. 4: Questions and Answers on Networking. 5: Contact Addresses for Various Organizations. Glossary of Terms. Bibliography. Index.

Latest Print 2014 / 480 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4907-0 / ₹ 395.00 / (e-book also available)

Computer Basics and Programming

ANAMI, et al.

Computer Concepts and C Programming: A Holistic Approach to Learning C, 2nd ed.

BASAVARAJ S. ANAMI, *Principal of KLE Institute of Technology, Hubli, Karnataka.*

SHANMUKHAPPA A. ANGADI, *Professor and Head, Department of Computer Science and Engineering, Basaveshwar Engineering College, Bagalkot, Karnataka.*

SUNILKUMAR S. MANVI, *Professor and Head, Department of Electronics and Communication Engineering, Reva Institute of Technology and Management, Bangalore, Karnataka.*

This second edition of the book allows students to undertake a complete study of C, including the fundamental concepts, programming, problem solving, and the data structures. The book is also structured to provide a general introduction to computer concepts before undertaking a detailed treatment of the C programming language. To that end, the book is eminently suitable for the first-year engineering students of all branches, as per the prescribed syllabus of several universities, for a course on Computer Concepts and C Programming. Besides, the book fully caters to the needs of the students pursuing undergraduate and postgraduate courses in general streams such as computer science, information science, computer applications (BCA and MCA) and information technology.

Written in an engaging style, the book builds the students' C programming skills by using a wide variety of easy-to-understand examples, illustrating along the way the development of programming constructs and logic for writing high-quality programs. The book also develops the concepts and theory of data structures in C, such as files, pointers, structures, and unions, using innumerable

examples. The worked examples, in the form of programs and program segments, are illustrated with outputs of sample runs.

A chapter on Computer Graphics is provided to give the students a feel of how C language is used for display of graphics and animation. An exclusive chapter on advanced concepts such as enumerated data types, bitwise operators and storage classes is included in sufficient detail to help students progress to writing practical and real-world applications. Besides, a new chapter presents a "C" quiz comprising of 100 objective type questions that help readers to test their C skills.

Contents: Preface. Acknowledgements. Part I: Computer Hardware and Software—Computer Concepts and Evolution of C. Part II: Fundamentals of C—Algorithms and Flowcharts. Variables, Constants, Data Types and Expressions. Input–Output Operations. Control Structures. Looping in Programs. Arrays. Functions in C. Part III: Advanced Concepts in C—Structures and Unions. Pointers and Their Usage. Files in C. Graphics Programming in C. Advanced Concepts in C Programming Language. Additional Programs. C Programming Quiz. Appendices—A: C Character Set and Keywords. B: ASCII Character Set. Glossary. Bibliography. Index.

Latest Print 2010 / 352 pp. / 17.8×23.5 cm
ISBN-978-81-203-4067-1 / ₹ 250.00 / (e-book also available)

FRIEDMAN & WAND

Essentials of Programming Languages, 3rd ed.

DANIEL P. FRIEDMAN, *Professor of Computer Science, Indiana University.*
MITCHELL WAND, *Professor of Computer Science, Northeastern University.*

This book provides students with a deep, working understanding of the essential concepts of programming languages. Most of these essentials relate to the semantics, or meaning, of program elements, and the text uses interpreters (short programs that directly analyze an abstract representation of the program text) to express the semantics of many essential language elements in a way that is both clear and executable. The approach is both analytical and hands-on. The book provides views of programming languages using widely varying levels of abstraction, maintaining a clear connection between the high-level and low-level views. Exercises are a vital part of the text and are scattered throughout; the text explains the key concepts, and the exercises explore alternative designs and other issues. The complete Scheme code for all the interpreters and analyzers in the book can be found online through The MIT Press Web site.

For this new edition, each chapter has been revised and many new exercises have been added. Significant additions have been made to the text, including completely new chapters on modules and continuation-passing style. *Essentials of Programming Languages* can be used for both graduate and undergraduate courses, and for continuing education courses for programmers.

With lucid prose and elegant code, this book provides the most concrete introduction to the few building blocks that give rise to a wide variety of programming languages. I recommend it to my students and look forward to using it in my courses.

—**CHUNG-CHIEH SHAN**, Department of Computer Science, Rutgers University

I've found the interpreters-based approach for teaching programming languages to be both compelling and rewarding for my students. Exposing students to the revelation that an interpreter for a programming language is itself just another program opens up a world of possibilities for problem solving. The third edition of Essentials of Programming Languages makes this approach of writing interpreters more accessible than ever.

—**MARC L. SMITH**, Department of Computer Science, Vassar College

Contents: Foreword by Hal Abelson. Preface. Acknowledgements. Inductive Sets of Data. Data Abstraction. Expressions. State. Continuation-Passing Interpreters. Continuation-Passing Style. Types. Modules. Objects and Classes. A: For Further Reading. B: The SLLGEN Parsing System. Bibliography. Index.

Latest Print 2009 / 432 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3806-7 / ₹ 325.00

RAJARAMAN

Computer Basics and C Programming

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

This book introduces students to the basics of computers, software and internet along with how to program computers using the C language. It is intended for an introductory course that gives beginning engineering and science students a firm rooting in the fundamental principles of computers and information technology, and also provides invaluable insights into key concepts of computing through development of skills in programming and problem solving using C language. To this end, the book is eminently suitable for the first-year engineering students of all branches and MCA students, as per the prescribed syllabus of several universities.

C is a difficult language to learn if it is not methodically introduced. The book explains C and its basic programming techniques in a way suitable for beginning students. It begins by giving students a solid foundation in algorithms to help them grasp the overall concepts of programming a computer as a problem-solving tool. Simple aspects of C are introduced first to enable students to quickly start writing programs. More difficult concepts in the latter parts of the book, such as pointers and their use, have been presented in an accessible manner making the learning of C an exciting and interesting experience. The methodology used is to illustrate each new concept with a program and emphasize a good style in programming to allow students to gain sufficient skills in problem solving.

KEY FEATURES

- Self-contained introduction to both computers and programming for beginners
- All important features of C illustrated with over 100 examples
- Good style in programming emphasized
- Laboratory exercises on applications of MS Office, namely, Word processing, Spreadsheet, PowerPoint are included.

Contents: Preface. Part I: Computer Basics—Information Technology and Computer Basics. Computer Software. Internet and the World Wide Web. Part II: Programming Using C—Computer Algorithms. Developing Algorithms. Programming Preliminaries. Simple Computer Programs. Numeric Constants and Variables. Arithmetic Expressions. Input and Output in C Programs. Conditional Statements. Implementing Loops in Programs. Defining and Manipulating Arrays. Logical Expressions and More Control Statements. C Program Examples. Functions. Processing Character Strings. Enumerated Data Types and Stacks. Structures. Pointer Data Type and Its Applications. Lists and Trees. Recursion. Bit Level Operations and Applications. Files in C. Miscellaneous Features of C. Appendices—I: Compiling and Running C Programs under UNIX. II: Reserved Words in C. III: Mathematical Functions. IV: String Functions. V: Character Class Tests. VI: File Manipulation Functions. VII: Utility Functions. VIII: Applications of MS Office Software. Bibliography. Index.

Latest Print 2015 / 444 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3343-7 / ₹ 325.00 / (e-book also available)

RAJARAMAN & ADABALA

Fundamentals of Computers, 6th ed.

V. RAJARAMAN, *Honorary Professor in the Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

NEEHARIKA ADABALA, *Founder and Chief Architect of CybULab Pvt. Ltd. She is also a co-founder of Lifetape Inc.*

The sixth edition of the highly acclaimed "Fundamentals of Computers" lucidly presents how a computer system functions. Both hardware and software aspects of computers are covered. The book begins with how numeric and character data are represented in a computer, how various input and output units function, how different types of memory units are organized, and how data is processed by the processor. The interconnection and communication between the I/O units, the memory, and the processor is explained clearly and concisely. Software concepts such as programming languages, operating systems, and communication protocols are discussed. With growing use of wireless to access computer networks, cellular wireless communication systems, WiFi (Wireless high fidelity), and WiMAX have become important. Thus it has now become part of "fundamental knowledge" of computers and has been included. Besides this, use of computers in multimedia processing has become commonplace and hence is discussed. With the increase in speed of networks and consequently the Internet, new computing environments such as peer to peer, grid, and cloud computing have emerged and will change the future of computing. Hence a new chapter on this topic has been included in this edition.

This book is an ideal text for undergraduate and postgraduate students of Computer Applications (BCA and MCA), undergraduate students of engineering and computer science who study fundamentals of computers as a core course, and students of management who should all know the basics of computer hardware and software. It is ideally suited for working professionals who want to update their knowledge of fundamentals of computers.

KEY FEATURES

- Fully updated retaining the style and all contents of the fifth edition.
- In-depth discussion of both wired and wireless computer networks.
- Extensive discussion of analog and digital communications.
- Advanced topics such as multiprogramming, virtual memory, DMA, RISC, DSP, RFID, Smart Cards, WiGig, GSM, CDMA, novel I/O devices, and multimedia compression (MP3, MPEG) are described from first principles.
- A new chapter on Emerging Computing Environments, namely, peer to peer, grid, and cloud computing, has been added for the first time in an entry level book.
- Each chapter begins with learning goals and ends with a summary to aid self-study.
- Includes an updated glossary of over 340 technical terms used in the book.

Contents: Preface. Computer Basics. Data Representation. Input/Output Units. Computer Memory. Processor. Binary Arithmetic. Logic Circuits. Computer Architecture. Programming Languages. Operating Systems. Microcomputers. Computer Generations and Classification. Computer Networks. Voice and Data Communications. Advanced Input/output Interfaces. Multimedia Data Acquisition and Processing. Emerging Computing Environments. References. Glossary. Index.

Latest Print 2014 / 448 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5067-0 / ₹ 295.00 / (e-book also available)

SAHA

Write Your First Program

AMIT SAHA, *Software Engineer with Red Hat Inc., Brisbane, Australia.*

This introductory book on programming introduces computer programming using the C and Python programming languages on Microsoft Windows and Linux operating systems to beginners. The book assumes no familiarity with programming and teaches the basics of programming to its readers. It helps the readers to write programs to solve problems in computer science, finance, mathematics or physics.

Unlike other introductory guides to programming, ***Write Your First Program*** focuses on the exact information that beginners are required to apply while creating practical programs. The book is organized in eight chapters—with each chapter introducing a major programming topic, focusing on the concepts and then implementing them in both the languages. This book will teach you to write your first program and progress on to concepts such as working with data, decision making, persistent data storage and implementing mathematical operations. Apart from programming, the book also discusses version control systems and open source projects.

The aim of the book is to focus on the programming logic, and then see how the logic can be implemented using two different languages. Thus, it helps the readers to learn two vastly different ways of programming. This book is intended for all those who are interested to learn/sharpen their programming skills.

Companion Website

The website for this book (www.phindia.com/saha) is an integral part of the book where you will find:

- Extended treatment of certain topics
- Additional tips and tutorials
- Questions and comments page

Contents: Preface. Acknowledgements. Getting Started. Variables, Memory Allocation and Pointers. Basic Programming Constructs. Data Structures. File Handling and Persistent Storage. Mathematical Functions. Advanced Topics. The Road Ahead. Appendix A: C Pro-gramming Resources. Appendix B: Python Programming Resources. Appendix C: Miscellaneous. Index.

Latest Print 2013 / 248 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4741-0 / ₹ 250.00 / (e-book also available)

SEGUIN

Computer Concepts and Microsoft® Office 2013

DENISE SEGUIN *has served on the Faculty of Business at Fanshawe College of Applied Arts and Technology in London, Ontario since 1986. She has developed curriculum and taught a variety of office technology, software applications, and accounting courses to students in postsecondary Information Technology diploma programs and Continuing Education courses.*

To be successful in any career, students need an understanding of computer hardware, software and terminology. This textbook provides them with the tools they need to succeed in today's world.

The text is organized in two parts—Computer Concepts (Part-I) and Computer Applications with Microsoft® Office 2013 (Part-II). Part I provides a general introduction to hardware, software, the internet, social media, security and ethics, while Part II offers instruction in the use of the Microsoft Windows Operating System, Internet explorer web browser, and applications within Microsoft Office. At the end of each chapter, students will have a chance to review a summary of the presented features, to complete several objective summary tasks, and then to apply the concept information or software skills in projects that will reinforce and expand the knowledge they have gained.

The Student Resources Disc, which accompanies this textbook, contains documents and files needed to complete topics and projects in Part II.

This book is an ideal text for undergraduate and postgraduate students of computer applications, undergraduate students of engineering and computer science, who study fundamentals of computers as a core course, and students of management who should know the basics of computer hardware and software. It is ideally suited for working professionals who want to update their knowledge of fundamentals of computers

HIGHLIGHTS OF THE TEXTBOOK INCLUDE:

BLOG TOPIC: A chance for you to write about your experience or opinions on the topic

CHECK THIS OUT: Related websites at which you can explore more information

DID YOU KNOW? Related interesting or fun facts or trivia about the topic

EXPLORE FURTHER: An activity where you do something to learn more or achieve a greater understanding of the topic or a related topic

Contents: Preface. Part I: Computer Concepts—Living in a Digital World. Exploring the World Using the Internet. Computer Hardware. The Operating System and Utility Programs. Application Software. Chapter 6 Using Social Media to Connect and Communicate. Computer Security and Privacy. Appendix A Buying a New Computing Device. Appendix B Wireless Networking. Glossary. Index. Part II: Computer Applications with Microsoft Office 2013—Using Windows 8 and Managing Files. Navigating and Searching the Web. Exploring Microsoft Office 2013 Essentials. Organizing and Managing Class Notes Using OneNote. Communicating and Scheduling Using Outlook. Creating, Editing, and Formatting Documents Using Word. Enhancing a Document with Special Features. Creating, Editing, and Formatting Worksheets Using Excel. Working with Functions, Charts, Tables, and Page Layout Options in Excel. Creating, Editing, and Formatting a Presentation Using PowerPoint. Enhancing a Presentation with Pictures, Sound, Video, and Animation Effects. Using and Querying an Access Database. Creating a Table, Form, and Report in Access. Integrating Word, Excel, PowerPoint, and Access Components. Using Windows Live SkyDrive and Other Cloud Computing Technologies. Glossary. Index.

Latest Print 2015 / 764 pp. / 21.6 × 27.8 cm
ISBN-978-81-203-5156-1 / ₹ 625.00

VAN ROY & HARIDI

Concepts, Techniques, and Models of Computer Programming

PETER VAN ROY *is Professor in the Department of Computing Science and Engineering at Universite Catholique de Louvain, at Louvain-la-Neuve, Belgium.*
SEIF HARIDI *is Professor of Computer Systems in the Department of Microelectronics and Information Technology at the Royal Institute of Technology, Sweden, and Chief Scientific Advisor of the Swedish Institute of Computer Science.*

This innovative text presents programming as a unified discipline in a way that is both practical and scientifically sound. The book focuses on techniques of lasting value and explains them precisely in terms of a simple abstract machines.

After an introduction to programming concepts, the book presents both well-known and lesser-known computation models ("programming paradigm"). Each model has its own set of techniques and each is included on the basis of its usefulness in practice. The general models include declarative programming, declarative concurrency, explicit state, object-oriented programming, shared-state concurrency, and relational programming. Specialized models include graphical user interface programming, distributed programming, and constraint programming. Each model is based on its kernel language—a simple core language that consists of a small number of programmer-significant elements. The kernel languages are introduced progressively, adding concepts one by one, thus showing the deep relationships between different models. The kernel languages are defined precisely in terms of a simple abstract machine. The book has many program fragments and exercises, all of which can be run on the Mozart Programming system, an Open Source Software package that features an interactive incremental development environment.

The book intends to be used in undergraduate courses on programming concepts and techniques, applied programming models, concurrent and distributed programming, computational models and on constraint programming.

Contents: Preface. Running the Example Programs. Introduction to Programming Concepts. I: General Computation Models—Declarative Computation Model. Declarative Programming Techniques. Declarative Concurrency. Message-Passing Concurrency. Explicit State. Object-Oriented Programming. Shared-State Concurrency. Relational Programming. II: Specialized Computation Models—Graphical User Interface Programming. Distributed Programming. Constraint Programming. III: Semantics—Language Semantics. IV: Appendixes—References. Index.

Latest Print 2015 / 932 pp. / 17.8 × 23.5 cm
ISBN-81-203-2685-9 / ₹ 450.00

C Programming

ARPITA GOPAL

Magnifying C

ARPITA GOPAL, *Director-MCA at Sinhgad Institute of Business Administration and Research, Pune.*

This book, the first of the *Magnifying Series*, presents a unique combination of semantic as well as syntactic aspects of C programming and provides the students with tricks and techniques for developing a C program with a clear insight into how the program would execute, terminate and can be rewritten in various possible ways.

The book teaches the basic programming concepts in C and illustrates various effective programming techniques by examples. It introduces different concepts such as binding time, process address space, call-by-value and recursion and attempts to rewrite programs using these concepts. The book explains the role of pointers in developing programs and compares arrays with pointers. Besides, it also discusses structures and unions as well as various types of file operations with the help of several application programs.

KEY FEATURES

- Includes memory tracing techniques for flow charts and programs to help students develop logic for problem solving.
- Presents step-by-step execution of programs.
- Provides various ways of writing a program to inculcate flexibility in students.
- Gives ready code for about 150 programs and about 100 programming problems for practice.

This book is designed for the students of Computer Applications (BCA/MCA), Computer Science (BSc/MSc), Computer Science and Engineering and Information Communication Technology (BE/B.Tech.) as well as for the students of other engineering disciplines.

Contents: Preface. Semantic Aspects. Syntactic Aspects. Simple Programs. Functions. Pointers. Storage Classes. Recursion. Arrays. More on Pointers. Miscellany. Structures and Unions. Files. Index.

Latest Print 2012 / 496 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3861-6 / ₹ 325.00 / (e-book also available)

GHOSH

All of C

SMARAJIT GHOSH, *Professor and Head of the Department of Electrical and Instrumentation Engineering, Thapar University, Patiala.*

Designed as a text for the students of computer science, computer applications, all branches of engineering, and also for those pursuing courses in ICT (Information Communication Technology) related subjects, this book is suitable for anyone new to programming in C. It

teaches the readers all about C—introduces the basic programming concepts, how to program, then moves on to a thorough discussion of advanced techniques and features of C. Though a new title, it is a completely reorganized, thoroughly revised and fully updated version of the author's earlier book *Programming in C*.

Highly practical in nature, the text is enriched throughout with numerous worked-out examples to help the reader grasp the application of the concepts discussed. Each chapter concludes with a section 'Test Yourself' (with answers) that provides students with an opportunity to solve plenty of interesting problems and coding assignments. Besides the book offers the following special features in three separate sections to help students build competence in programming and to prepare them to attempt solutions to real-life assignments.

- 75 Solved Programs
- 120 Multiple Choice Questions
- 88 Confidence Building Programs

Contents: Preface. Acknowledgements. Number Systems, Codes, and Boolean Algebra. Unix. Structure of C Programming. Basic Elements. Operators and Expressions. Input and Output Operations. Control Statements. Arrays. Character Strings. User-Defined Functions. Pointers. Structures and Unions. File Management. Introduction to Data Structures in C. Solved Programs. Multiple Choice Questions. Build Up Your Confidence. Index.

Latest Print 2012 / 492 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3520-2 / ₹ 295.00 / (e-book also available)

KARTHIKEYAN

Textbook on C, A: Fundamentals, Data Structures and Problem Solving

E. KARTHIKEYAN, *Assistant Professor in Computer Applications, D.J. Academy for Managerial Excellence, Coimbatore.*

This book is designed to provide a solid introduction to the basics of C programming, and demonstrate C's power and flexibility in writing compact and efficient programs not only for information processing but also for high-level computations. It is an ideal text for the students of Computer Applications (BCA/MCA), Computer Science (B.Sc./M.Sc.), Computer Science and Engineering (B.E./B.Tech.), Information Technology (B.E./B.Tech.) as well as for the students pursuing courses in other engineering disciplines, both at the degree and diploma levels, possessing little or no programming experience.

The book presents a comprehensive treatment of the language, highlighting its key features and illustrating effective programming techniques by examples. The basic programming concepts such as data types, input and output statements, looping statements, etc. are clearly explained in a simplified manner. The advanced techniques such as functions, pointers and files are discussed thoroughly. One of the key topics, Data Structures, is explained in detail with diagrammatic representations and well-written programs. The linked list, the heart of the data structure part, is very well illustrated. The final part of the book contains a collection of solved programs to reinforce the under-standing of the concepts of the C language.

Contents: Preface. Introduction. Statements. Control Statements. Arrays. Strings. Functions. Pointers. Structures and Unions. Files. Preprocessor. Data Structures and Algorithms. Additional Solved Programs. Index.

Latest Print 2016 / 304 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3424-3 / ₹ 295.00

RAJARAMAN

Computer Programming in C

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

This book introduces computer programming to a beginner using the programming language C. The version of C used is the one standardised by the American National Standards Institute (ANSI C). C has rapidly gained users due to its efficiency, rich data structure, variety of operators and affinity to the UNIX operating system. C is a difficult language to learn if it is not methodically approached. The attempt has been to introduce the basic aspects of C to enable the student to quickly start writing C programs and postpone more difficult features of C to later chapters. The methodology of presentation closely follows the one used by the author in his popular book on PASCAL programming. Those who know PASCAL will find it very easy to learn C using this book.

KEY FEATURES

- A self-contained introduction to programming in C for beginners.
- All important programming language features illustrated with over 100 example programs.
- Good style in programming emphasised.
- Eminently suitable for self-study.

Contents: Preface. Computer Algorithms. Flow Charts. Programming Preliminaries. Simple Computer Programs. Numeric Constants and Variables. Arithmetic Expressions. Input and Output in C Programs. Conditional Statements. Implementing Loops in Programs. Defining and Manipulating Arrays. Logical Expressions and More Control Statements. C Program Examples. Functions. Processing Character Strings. Enumerated Data Types and Stacks. Structures. Pointer Data Type and Applications. Lists and Trees. Recursion. Bit Level Operations and Applications. Files in C. Miscellaneous Features in C. Appendices. Compiling and Running C Programs in Unix. Reserved Words in C. Mathematical Functions. String Functions. Character Class Tests. File Manipulation Functions. Utility Functions. Summary of C Language. Index. References. Index.

Latest Print 2014 / 372 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-0859-6 / ₹ 250.00

ROUT

C: Learning and Building Business and System Applications, 2nd ed.

SUSANT K. ROUT, *Founder, LIT Susant K. Rout Centre of Excellence, Bhubaneswar.*

This book offers an in-depth introduction to C programming language—from the basics to the advanced concepts. It is application oriented, too. The text is interspersed with numerous worked-out examples to help readers grasp the application of concepts discussed.

The second edition includes an additional chapter on Inter Process Communication.

The book is suitable for several categories of readers—from beginners to programmers or developers. It is also suitable for students in engineering and science streams and students pursuing courses in computer applications.

Contents: Preface. Acknowledgements. Getting Started. Programming Environment. Data Types. Operators. Control Structures. Pointers. Arrays. Functions. Storage Classes. C Preprocessor. Structures and Unions. Memory Allocation. Files. Command Line Arguments. Processes. Threads. Inter Process Communication. Networking/ Socket Programming. ODBC Programming. Working with Curses Library. Graphics Program Using GTK+ and Glade Interface. Development Tools. Index.

Latest Print 2016 / 488 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4748-9 / ₹350.00 / (e-book also available)

SOMASHEKARA

Problem Solving with C

M.T. SOMASHEKARA, *Department of Computer Science and Applications, Bangalore University, Bangalore, Karnataka.*

This compact and student-friendly text provides a solid programming foundation to solve problems with C language, through its well-supported structured programming methodology, rich set of operators and data types. The book is designed to help students build efficient and compact programs. It is a thoroughly revised and extended version of the author's previous title *Programming in C*, now entitled *Problem Solving with C.* In addition to the three newly added chapters (Problem Solving using Computers, Programming at Bit Level, and Miscellaneous Features), all other chapters of the previous book have also been thoroughly revised. This book comes with an increased number of examples, example-programs, review questions and programming exercises, and true/false questions in each chapter, and a glossary of key terminologies at the end of the book. The book is eminently suitable for students of Computer Science, Computer Applications, and Information Technology at both undergraduate and postgraduate levels. Assuming no previous knowledge of programming techniques, this book is appropriate for all those students who wish to master the C language as a problem solving tool for application in their respective disciplines. It even caters to the needs of those who are first time computer programmers.

KEY FEATURES

- Introduction to problem solving tools like algorithms, flowcharts and pseudo codes
- Systematic approach to teaching C with lucid explanation of each concept
- Expanded coverage of arrays, structures, pointers and files
- Complete explanation of working of each program with emphasis on the core segment of the programs, supported by a large number of solved example programs and programming exercises in each chapter.

Contents: Preface. Problem Solving Using Computers. Evolution of Programming Languages. Overview of C Language. C Language Preliminaries. Input-Output Operations. Operators and Expressions. Decision Making and Branching (Selection). Looping Statements in C. Functions. Arrays. Strings. Structure. Pointers. File Handling in C. The C Preprocessor. Programming. Miscellaneous Topics. Appendices—A: Mathematical Functions. B: Character Test Functions. C: String Manipulation Functions. D: File Manipulation Functions. E: Utility Functions. Glossary. Index Terms.

Latest Print 2014 / 496 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3816-6 / ₹350.00 / (e-book also available)

C# Programming

RAO

Programming with C#: Concepts and Practice

B. RAMA KRISHNA RAO, *Professor of Faculty of Informatics, Addis Ababa University, Addis Ababa, Ethiopia, United Nations Development Programme (UNDP).*

Written in an engaging style, this book is especially designed for the beginner or intermediate level programmer to make the C# concepts accessible and exciting. The book offers a coherent approach to C# programming and focuses on the *fundamentals*—from elementary to the complex concepts of the language.

The text is thoughtfully divided into three parts. The first part provides a basic understanding of object-oriented programming, the .NET platform and its infrastructure, console and windows application programs, and the various iterative and decision making statements available in C#. The second part introduces features such as classes, objects, inheritance and polymorphism, indexers, delegates and events. The third part of the book describes the benefits of implementation of .NET assemblies, namespaces, attributes and reflections, exception handling, and threads to help students appreciate the performance issues with great clarity. The final two

chapters are devoted to writing applications in Windows so that the students can build upon the knowledge gained from the book.

KEY FEATURES

- Provides scintillating coverage of both theory and practice.
- Includes more than a hundred tested programs to develop students' proficiency with C# fundamentals.
- Offers chapter-end review questions with answers to enhance students' fundamental skills.

C# being one of the languages supported by Microsoft .NET Framework, this textbook will be useful to students of computer science, computer applications, information science and information technology.

Contents: Foreword. Preface. Acknowledgements. PART I—An Overview of Object Oriented Programming (OOP). The .NET Platform. Your First C# Application. Tokens, Data Types and Expressions. Program Flow Control. PART II—Classes and Objects. Inheritance, Polymorphism and Interface. Working with C# I/O Files. Properties and Indexers. Delegates and Events. PART III—Namespaces, Assemblies and MSIL. Metadata, Attributes and Reflection. Exceptions, Threads and Compiler Directives. Introduction to Windows Forms. Adding C# Controls to Windows Forms. References. Selected Answers to Review Questions. Index.

Latest Print 2009 / 428 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3117-4 / ₹ 375.00

SATHIASEELAN & SASIKALADEVI

Programming with C# .NET

J.G.R. SATHIASEELAN *is Head, Department of Computer Science and Applications, and Chairman, Board of Studies, Bishop Heber College, Thiruchirappally, Tamil Nadu.*

N. SASIKALADEVI *is with the Department of Computer Science and Applications, Bishop Heber College, Thiruchirappally.*

C# is the newest of Microsoft's languages that makes use of the Microsoft .NET Framework—a comprehensive set of classes that provide functionality in every aspect of the programming industry with its new object-oriented products. This book provides a step-by-step understanding of the programming concepts and theories for the beginners in .NET programming. It focuses on the Windows-based application programs, Visual programming concepts, interactive graphics fundamentals, and database connectivity concepts. The text includes topics such as Windows Forms, Windows Controls, Windows programming, data access with ADO .NET, and handling data access and data manipulation in codes.

Thoroughly practical and elaborate, the book provides deep insights into the .NET programming concepts and is designed to enhance the programming skills of the users of C#.

KEY FEATURES

- The coverage is quite comprehensive, with more than 100 solved problems.
- All concepts are supported by plenty of tables, screen shots, and connectivity codes to make the reader comprehend the concepts better.

Intended primarily as a text for the undergraduate and postgraduate students of Computer Science and Engineering, and Electronics and Communication Engineering, this book will be extremely useful also for the students of Master/Bachelor of Computer Applications (MCA and BCA) and Information Technology. It should also prove to be helpful as a reference for software developers ranging from .NET professionals, Visual programmers, to graphic designers.

Contents: Preface. Batch 1—Overview of .NET Framework. Windows Forms. Windows Controls—Category 1. Batch 2—Windows Controls—Category 2. Windows Controls—Category 3. Windows Controls—Category 4. Advanced Windows Programming. Batch 3—Data Access with ADO.NET. Handling Databases in Code. Handling Data Manipulation in Code.

Latest Print 2009 / 480 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3726-8 / ₹ 350.00 / (e-book also available)

SESTOFT & HANSEN

C# Precisely, 2nd ed.

PETER SESTOFT, *Professor of Software Development at the IT University of Copenhagen, Denmark.*

HENRIK I. HANSEN *holds master's degrees in information technology and chemistry.*

The book is a compact and easy to navigate text on the subject. It offers a quick and accessible reference for anyone who wants to know C# in detail. It is particularly useful for C# learners who are familiar with Java.

This second edition has been updated and expanded, reflecting the evolution and extension of the C# programming language. It covers C# versions 3.0 and 4.0 (as covered in Microsoft Visual Studio 2010), and provides a look ahead at some of the innovations of version 5.0. In particular, it describes asynchronous programming as found in version 5.0.

The book describes C# in detail but informally and concisely, presenting lambda expressions, extension methods, anonymous object expressions, object initializers, collection initializers, local variable type inference, type dynamic, type parameter covariance and contravariance, and Linq (language integrated query), among other topics. It also provides more than 250 examples to illustrate both common use and subtle points. Two-page spreads show general rules on the left and relevant examples on the right, maximizing the amount of information accessible at a glance.

The complete, ready-to-run example programs are available at the book's Web site, http://www.itu.dk/people/sestoft/csharpprecisely/

Contents: Preface. Notational Conventions. Compiling, Loading, and Executing C# Programs. Names and Reserved Names. C# Naming Conventions. Comments and Program Layout. Data and Types. Variables, Parameters, Fields, and Scope. Strings. String Builders. Arrays. Classes. The Machine Model: Stack, Heap, and Garbage Collection. Expressions. Statements. Struct Types. Interfaces. Enum Types. Delegate Types. Type dynamic (C# 4.0). Nullable Types over Value Types. Exceptions. Threads, Concurrent Execution, and Synchronization. Task Parallel Library (C#4.0). Asynchronous Methods: async and await (C#5.0). Mathematical Functions. Input and Output. Generic Types and Methods. Generic Collections: Sets, Lists, and Dictionaries. Linq, Language Integrated Query (C# 3.0). Namespaces. Partial Type Declarations. Assertions and the Debug.Asert Method. Attributes. Main Differences between C# and Java. Resources. Index.

Latest Print 2012 / 260 pages / 17.8 × 23.5 cm
ISBN-978-81-203-4597-3 / ₹ 250.00

C++ Programming

SOMASHEKARA, et al.

Object-Oriented Programming with C++, 2nd ed.

M.T. SOMASHEKARA, *Department of Computer Science and Applications, University of Bangalore.*
D.S. GURU, *Department of Studies in Computer Science, University of Mysore.*
H.S. NAGENDRASWAMY, *Department of Studies in Computer Science, University of Mysore.*
K.S. MANJUNATHA, *Department of Computer Science, Maharani's Science College, Mysore.*

This book is the second edition of M.T. Somashekara's earlier book titled *Programming in C++*, under the new title *Object-Oriented Programming with C++*. In consonance with the new title, two chapters—one explaining the concepts of object-oriented programming and the other on object-oriented software development—have been added, respectively, at the beginning and end of the book.

Substantial improvements have been effected in all chapters on C++. The book also carries a new chapter titled Standard Template Library.

The book covers the C++ language thoroughly, from basic concepts through advanced topics such as encapsulation, polymorphism, inheritance, and exception handling. It presents C++ in a pedagogically sound way, giving many program examples to highlight the features and benefits of each of its concepts.

The book is suitable for all engineering and science students including the students of computer applications for learning the C++ language from the first principles.

KEY FEATURES

- Logical flow of concepts starting from the preliminary topics to the major topics.
- Programs for each concept to illustrate its significance and scope.
- Complete explanation of each program with emphasis on its core segment.
- Chapter-end summary, review questions and programming exercises.
- Exhaustive glossary of programming terms.

Contents: Preface. Object-Oriented Programming (OOP)—An Overview. C++ Language—An Overview. C++ Language—Preliminaries. Operators and Expressions. Selection. Iteration. Functions. Arrays. C—Strings. Structures and Unions. Pointers. The C++ Preprocessor. Classes and Objects. Constructors and Destructors. Operator Overloading and Type Conversions. Inheritance. I/O Streams. File Handling. String Handling. Exception Handling. Templates. New Features of C++. Standard Template Library. Object-Oriented Software Development. Appendix A: Mathematical Functions. Appendix B: Character Test Functions. Glossary. Bibliography. Index.

Latest Print 2014 / 704 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4462-4 / ₹ 475.00 / (e-book also available)

FORTRAN Programming

RAJARAMAN

Computer Programming in FORTRAN 77 (with an Introduction to FORTRAN 90), 4th ed.

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

This book is the revised and enlarged version of the author's widely acclaimed book *Computer Programming in FORTRAN 77* (Prentice-Hall of India, 1988). In its fourth edition, the major addition is a chapter on FORTRAN 90 which has recently emerged as a new standard. The obsolete features of FORTRAN 77 have therefore been pointed out throughout the text and finally consolidated in an Appendix. However, *all* FORTRAN 77 programs written adhering to ANSI standard (without using the obsolete features) are executable without change in FORTRAN 90 compilers. Thus FORTRAN 77 will continue to be used for sometime.

As with the previous editions, this book introduces the basic concepts of computer programming using FORTRAN 77 language. The style of presentation is simple and elucidative and suitable for self study. The concepts introduced have been illustrated with worked example programs, written using the structured programming style. The worked examples have been tested using the ANSI FORTRAN 99 compiler.

Contents: Preface. Computer Oriented Procedures. Flow Charts. Fortran Programming Preliminaries. Fortran Constants and Variables. Arithmetic Expressions. Input-Output Statements. Simple Computer Programs. Control

Statements. The DO Statement. Subscripted Variables. Elementary Format Specifications. Logical Expressions and Decision Tables. Fortran Program Examples. Functions and Subroutines. Processing Files in Fortran. Character Manipulation in Fortran. Miscellaneous FORTRAN 77 Features. Introduction to Fortran 90. APPENDICES: I—Built-in Functions in FORTRAN. II—Summary of FORTRAN 77 Features. III—Obsolete Features of FORTRAN 77. IV—References. Index.

Latest Print 2016 / 208 pp. / 21.6 × 27.8 cm
ISBN-978-81-203-1172-5 / ₹ 250.00

RAJARAMAN

Computer Programming in FORTRAN 90 and 95

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

This book introduces computer programming to a beginner using Fortran 90 and its recent extension Fortran 95. While Fortran 77 has been used for many years and is still very popular, the International Standards Organization set up a group to 'modernize' Fortran and introduce new features which have made languages such as Pascal and C popular. The committee came up with the new standard, Fortran 90, which has introduced many new features in Fortran such as recursion, pointers, user defined data types, etc., hitherto available only in Pascal and C. Fortran 90 is not an evolutionary change of Fortran 77 but is drastically different. Though Fortran 77 programs can be run using a Fortran 90 compiler, Fortran 90 is so different that the author felt it was a good idea to introduce Fortran 90 from basics. In 1996, some small extensions were made to Fortran 90 and called Fortran 95. This book also discusses these features. As all new programs in Fortran will henceforth be written in Fortran 90, it is essential for students to learn this language.

One of the main merits of the book is that every concept in the language has been illustrated with an appropriate example program. This approach makes the book eminently suitable for self-study as well.

Contents: Preface. Evolution of Fortran. Simple Fortran 90 Programs. Numeric Constants and Variables. Arithmetic Expressions. Input-Output Statements. Conditional Statements. Implementing Loops in Programs. Logical Expressions and More Control Statements. Functions and Subroutines—Basics. Defining and Manipulating Arrays. Elementary Format Specifications. Processing Strings of Characters. Program Examples. Procedures with Array Arguments. Derived Types. Additional Features in Procedures. Processing Files in Fortran. Pointer Data Types and Applications. Use of Modules. Miscellaneous Features of Fortran 90. Additional Features of Fortran 95. Appendices—A: Intrinsic Procedures in Fortran 90. B: Statement Order in Fortran 90. C: Statement of Fortran 77 declared as Obsolete in Fortran 95. D: New Fortran 90/95 Features compared with Fortran 77. References. Index.

Latest Print 2013 / 364 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-1181-7 / ₹ 250.00

Java Programming

HARWANI

JavaServer Faces: A Practical Approach for Beginners

B.M. HARWANI, *Managing Director, Microchip Computer Education (MCE), Ajmer.*

Based on a standard web-application framework, JavaServer Faces (JSF), this book provides a step-by-step practical approach to understand the basic controls of JSF and its real life applications. It includes examples which help to apply different techniques provided by JSF such as tags, converters and validators in real life situations.

The book begins with an introduction to JavaServer Faces architecture, its lifecycle, its main components and the installation steps of the softwares required to run and implement JSF. Further it covers expression language and its use to access Managed Bean attributes, and a practical usage of different components like text field, text area, command button, menu, checkbox and so on. Every component is explained with a program as they act as a building block for any web application. Finally it discusses all the steps required in creating two custom components: label component and email component. The creation and deployment of RichFaces and Ajax4Jsf application are also explained step-by-step.

KEY FEATURES

- Provides the use of latest available IDE: NetBeans IDE 6.0/6.1 for making JSF based web application.
- Gives step-by-step approach for creating custom converters, validators and components.
- Elaborates the use of Ajax and its advantages in web applications.

Primarily intended for the software professionals, this book will also be useful to the students of computer science and engineering (B.Tech and M.Tech), and master of computer applications (MCA).

Contents: Preface. JavaServer Faces: An Overview. Setting Up JSF. Expression Language. JSF HTML Tags. Converters. Validation. Event Handling. Page Navigation. Using NetBeans IDE. Creating Custom Component. AJAX with RichFaces Using JBoss. Index.

Latest Print 2012 / 360 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3709-1 / ₹ 325.00

HARWANI

Practical JSF Project Using NetBeans

B.M. HARWANI, *Managing Director, Microchip Computer Education (MCE), Ajmer.*

Java Server Faces (JSF) is a new exciting technology used for developing web applications. It supports Rapid Application Development (RAD) style of application development and provides APIs and tag libraries to build web-based user interfaces. NetBeans provides a list of controls, properties, menus, database access etc. to enable web developers to develop powerful Java-based applications with ease.

This compact book explains how to use different components of JSF in NetBeans IDE in developing a web application. It describes the techniques of data storage and retrieval using MySQL database tables, session handling and navigation between web pages. In addition, this text presents a real-life web application 'Shopping Cart' project and its functions in a step-by-step manner to help the readers understand the concepts discussed.

The book is specially suitable for students of computer science, computer applications, computer science and engineering, and information and communication technology. Besides, it can serve the needs of students of all other engineering disciplines for their project/ thesis work related to Java-based applications. The text is also useful for software developers, trainees and professionals.

KEY FEATURES

- Screen shots are included for each step.
- Coding used in different modules is explained in detail.
- Designing of the back-end database is described using MySQL server.

Contents: Preface. Getting Started. Introduction to NetBeans IDE. Shopping Cart Project. Sample Output. Creating Tables. Creating Heading and Menu Fragments. All Products List Module. Searching Items and Show Cart Module. Registration Module. Login Module. Order Form Module. Startup Module. Index.

Latest Print 2009 / 336 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3856-2 / ₹ 295.00 / (e-book also available)

MARRELLI

Guide to Programming in Java, A, 3rd ed.

JAN MARRELLI.

Primarily intended for the undergraduate students of computer science and engineering, information technology and computer applications, this text emphasizes the basic concepts of programming so that it can be applied to other programming languages. The object-oriented approach to programming is taught with an emphasis on fundamental concepts including variables, conditional control structures, loops, strings methods, classes, arrays, and files. Case studies are used to teach the good programming methodology of specification, code design, implementation, testing, and debugging. Each chapter includes demonstration applications to explain programming concepts. After a new concept is discussed, hands-on problems are given, which provide students with immediate reinforcement. Besides, numerous reviews are presented throughout each chapter to provide immediate reinforcement of newly learned concepts.

SALIENT FEATURES

Within each chapter, you will find:

- **Alternatives**: Other ways to perform actions.
- **TIPs**: Additional information that complements the text.
- **Sidebars**: Additional topics that complement the text.
- **Text in the margin**: Indicates new terminology and subtopics.

The end of each chapter contains:

- **Chapter Summaries**: Concepts covered in the chapter are reviewed.
- **Critical Thinking Questions**: Critical thinking questions that will let you review and deepen your understanding of the concepts covered in the chapter.
- **Vocabulary and Java Syntax Sections**: A list of new terms and definitions and a list of the Java syntax covered in the chapter.

Contents: Preface. Computer Technology. Introducing Java. Variables and Constants. Conditional Control Structures. Loop Structures and Strings. Methods. Classes and Object-Oriented Development. Inheritance and Polymorphism. Arrays. GUIs and Event-Driven Programming. Files and Exception Handling. Recursion and Advanced Algorithms. Data Structures. Appendices—A: Unicode. B: Using JCreator. C: Applets and Web Programming. Index.

Latest Print 2015 / 384 pp. / 21.6 × 27.8 cm
ISBN-978-81-203-5155-4 / ₹ 375.00

MATHA

Core Java: A Comprehensive Study

MAHESH P. MATHA, *Assistant Professor, Department of Computer Science (Postgraduate section), Parvatibai Chowgule College of Arts and Science, Goa.*

This comprehensive and accessible text discusses all the aspects of Core Java in a simple and easy to understand language. It begins with a discussion on the fundamentals of Java and then goes on to give a description of the various operators provided by Java, different ways of making decisions through branching, and the core concepts of Java, that is, classes, objects and their features. Besides, the text also explains the intricacies of one of the most important features of object-orientation, i.e. inheritance, packages and wrapper classes, arrays, strings, string-buffers, and multi-threaded programming and its intricacies. Finally, it elaborates on the classes and interfaces of lang, util and io packages.

The book is intended for the undergraduate students of

Engineering [B.Tech. (Computer Science)/B.Tech. (IT)], as well as for undergraduate and postgraduate students of Computer Applications (BCA/MCA), and Computer Science and Information Technology—B.Sc./M.Sc. (Computer Science/IT). Besides, professionals in the field will find the book quite useful.

KEY FEATURES

- Illustrates the topics discussed with the help of sample programs.
- Provides a large number of questions at the end of each chapter to test the reader's understanding of the concepts.
- Gives a comprehensive Glossary of the terms used in the text.

Contents: Preface. An Introduction to Java. An Overview of Java. Operators and Expressions. Decision Making through Branching and Looping. Classes and Objects in Java. Inheritance. Packages and Wrapper Classes. Arrays, Strings and StringBuffers. Exception Handling Mechanisms in Java. Multithreaded Programming. Generics. The java.lang Package. The java.util Package—I. The java.util Package—II. The java.util Package—III. The java.util Package—IV. The java.io Package—I. The java.io Package—II. Glossary. Index.

Latest Print 2016 / 812 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4241-5 / ₹ 550.00 / (e-book also available)

MATHA

JSP and Servlets: A Comprehensive Study

MAHESH P. MATHA, *Assistant Professor, Department of Computer Science (Postgraduate section), Parvatibai Chowgule College of Arts and Science, Goa.*

JavaServer Pages (JSP) and Servlets are nowadays being extensively used to develop web application software. This book provides a comprehensive coverage of the fundamental and the advanced concepts of JavaServer Pages (JSP) and Servlets. It focuses on Server-side Programming using JSP and Servlets; JSP with MySQL; JSP with XML; the Expression Language; JSP Standard Tag Library; Custom Tag Library; Application Event Listeners and Filters. While discussing JSP with MySQL and JSP with XML, the fundamentals of Database Programming and XML are covered in order to lay a proper foundation for discussing SQL and XML tags of JSTL. Similarly, the concept of time zones, locales and resource bundles are explained in detail before discussing JSTL and formatting tags. A separate chapter is dedicated to each of the four tag libraries—Core; SQL; XML; and formatting with detailed coverage of custom tags.

The book is designed primarily for the undergraduate and postgraduate students of computer science and engineering, and computer applications. The IT professionals working on Advanced Web Technologies and Web Component Development will also find this book useful.

KEY FEATURES

- Sample Programs in each chapter
- Theory Questions at the end of each chapter for checking the student's grip on the topic
- Programming Questions at the end of each chapter to test the ability of the reader to apply conceptual knowledge in practical situations

Contents: Preface. Acknowledgements. HTTP and JSP: Servlet Technology. JSP and Servlets: An Overview. Components of a JSP. Implicit Objects of JSP. Servlets and Session Tracking Mechanisms. Application Event Listeners. Filters. The Expression Language. The JSTL Core Tags and Functions. JSP, XML and the JSTL XML Tags. JSP, Databases and the JSTL SQL Tags. The JSTL Formatting Tags. An Introduction to Custom Tags. Simple Tag Extensions, JSP Fragments and Tag Files. Glossary. Index.

Latest Print 2013 / 472 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4745-8 / ₹ 525.00 / (e-book also available)

SOMASHEKARA, et al.

Object Oriented Programming with Java

M.T. SOMASHEKARA *is with the Department of Computer Science and Applications, Bangalore University, Bengaluru.*
D.S. GURU *is with the Department of Studies in Computer Science, University of Mysore, Mysuru.*
K.S. MANJUNATHA *is with the Department of Computer Science, Maharani's Science College for Women, Mysuru.*

The book has been organised in well-planned 18 chapters, starts with the discussions on the object oriented paradigm; talks about the advantages and its limitations and the programming languages that support this paradigm. The Java language is identified to be a powerful language supporting pure object orientation. It highlights the salient features of Java like simple, object orientation, robustness, multithreaded, distributed, etc. Starting from the preliminaries of the language and the basic principles of OOP, it moves gradually towards advanced concepts like exception handling, multithreaded programming, GUI support by the language through AWT controls, string handling, file handling and basic utility classes. In addition, the well-planned material in the book acts as a precursor to move towards high-end programming in Java which includes advanced topics like Servlets, Java Server Pages, JDBC, Swings, etc.

Another hallmark of the book is that it needs no previous knowledge of programming. It is self-readable text and highly informative. It has exhaustive coverage of concepts containing good illustrative examples for each concept supported by well-crafted programs.

The book is highly suitable for all undergraduate and postgraduate students of Computer Science, Computer Applications, Computer Science and Engineering and

Information Technology [B.Sc (CS), B.Sc IT, M.Sc IT, BCA, BE/B.Tech (CSE and ISE) and MCA].

KEY FEATURES

- Comprehensive coverage of the OOP concepts and Core Java
- Lucid explanation of the concepts using simple and expressive language
- Complete explanation of the working of each program with more emphasis on the core segment of the program
- Chapter-end summary, over 230 illustrative programs, around 225 review questions, about 190 true/false questions and over 130 programming exercises

Contents: Foreword. Preface. Acknwledgements. Introduction to Object Oriented Programming Paradigm. Introduction to the JAVA language. Java Language Preliminaries.Operators and Expressions. Selection. Iteration. Classes, Objects and Methods.Inheritance. Interfaces. Packages. Arrays. String Handling. Exception Handling. Multithreaded Programming. File Handling. Applets. Introduction to AWT. Basic Utility Classes. The Java Collection Framework [The java.util Package]. Index.

608 (approx.) / 17.8 × 23.5 cm
ISBN-978-81-203-5287-2 / FORTHCOMING

Python Programming

GUTTAG

Introduction to Computation and Programming Using Python, 2nd ed.

JOHN V. GUTTAG, *Dugald C. Jackson Professor of Computer Science and Electrical Engineering, MIT.*

This book introduces students with little or no prior programming experience to the art of computational problem solving using Python and various Python libraries, including PyLab. It provides students with skills that will enable them to make productive use of computational techniques, including some of the tools and techniques of data science for using computation to model and interpret data. This new edition has been updated for Python 3, reorganized to make it easier to use for courses that cover only a subset of the material, and offers additional material, including five new chapters.

Students are introduced to Python and the basics of programming in the context of such computational concepts and techniques as exhaustive enumeration, bisection search, and efficient approximation algorithms. Although it covers such traditional topics as computational complexity and simple algorithms, the book focuses on a wide range of topics not found in most introductory texts, including information visualization, simulations to model randomness, computational techniques to understand data, and statistical techniques that inform (and misinform) as well as two related but relatively advanced topics: optimization problems and dynamic programming. This edition offers expanded material on statistics and machine learning and new chapters on Frequentist and Bayesian statistics.

"This is the 'computational thinking' book we have all been waiting for! With humor and historical anecdotes, John Guttag conveys the breadth and joy of computer science without compromising technical detail. The second edition includes brand new material that focuses on computational approaches to understanding data, complementing traditional computational problem solving."

—**Jeannette M. Wing**, Corporate Vice President, Microsoft Research, and Consulting Professor of Computer Science and former Department Head, Carnegie Mellon University

"John Guttag is an extraordinary teacher and an extraordinary writer. This is not 'a Python book,' although you will learn Python. Nor is it a 'programming book,' although you will learn to program. It is a rigorous but eminently readable introduction to computational problem solving, and now also to data science—this second edition has been expanded and reorganized to reflect Python's role as the language of data science."

—**Ed Lazowska**, Bill & Melinda Gates Chair in Computer Science & Engineering, and Director of the eScience Institute, University of Washington

Contents: Preface. Acknowledgments. Getting Started. Introduction to Python. Some Simple Numerical Programs. Functions, Scoping, and Abstraction. Structured Types, Mutability, and Higher-Order Functions. Testing and Debugging. Exceptions and Assertions. Classes and Object-Oriented Programming. A Simplistic Introduction to Algorithmic Complexity. Some Simple Algorithms and Data Structures. Plotting and More about Classes. Knapsack and Graph Optimization Problems. Dynamic Programming. Random Walks and More About Data Visualization. Stochastic Programs, Probability, and Distributions. Monte Carlo Simulation. Sampling and Confidence Intervals. Understanding Experimental Data. Randomized Trials and Hypothesis Checking. Conditional Probability and Bayesian Statistics. Lies, Damned Lies, and Statistics. A Quick Look at Machine Learning. Clustering. Classification Methods. Python 3.5 Quick Reference. Index.

Latest Print 2017 / 468 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5292-6 / ₹ 695.00

SAHA

Write Your First Program

AMIT SAHA, *Software Engineer with Red Hat Inc., Brisbane, Australia.*

This introductory book on programming introduces computer programming using the C and Python programming languages on Microsoft Windows and Linux operating systems to beginners. The book assumes no familiarity with programming and teaches the basics of programming to its readers. It helps the readers to write

programs to solve problems in computer science, finance, mathematics or physics.

Unlike other introductory guides to programming, ***Write Your First Program*** focuses on the exact information that beginners are required to apply while creating practical programs. The book is organized in eight chapters—with each chapter introducing a major programming topic, focusing on the concepts and then implementing them in both the languages. This book will teach you to write your first program and progress on to concepts such as working with data, decision making, persistent data storage and implementing mathematical operations. Apart from programming, the book also discusses version control systems and open source projects.

The aim of the book is to focus on the programming logic, and then see how the logic can be implemented using two different languages. Thus, it helps the readers to learn two vastly different ways of programming. This book is intended for all those who are interested to learn/sharpen their programming skills.

Companion Website

The website for this book (www.phindia.com/saha) is an integral part of the book where you will find:

- Extended treatment of certain topics
- Additional tips and tutorials
- Questions and comments page

Contents: Preface. Acknowledgements. Getting Started. Variables, Memory Allocation and Pointers. Basic Programming Constructs. Data Structures. File Handling and Persistent Storage. Mathematical Functions. Advanced Topics. The Road Ahead. Appendix A: C Programming Resources. Appendix B: Python Programming Resources. Appendix C: Miscellaneous. Index.

Latest Print 2013 / 248 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4741-0 / ₹ 250.00 / (e-book also available)

Scheme Programming

DYBVIG

Scheme Programming Language, The, 4th ed.

R. KENT DYBVIG, *Professor of Computer Science at Indiana University and principal developer of Chez Scheme.*

This book is intended to provide an introduction to the Scheme Programming Language in a clear and concise manner. Scheme is a general purpose, high level programming language, supporting operations on structural data such as strings, lists and vectors, as well as operations on more traditional data such as numbers and characters. It is fairly a simple language to learn and a truly versatile language that has been employed to write text editors, optimizing compilers, operating systems, graphics packages, expert systems, numerical applications, financial analysis packages, virtual reality systems and practically every other type of application imaginable.

Written for professionals and students with some prior programming experience, it begins by leading the programmer gently through the basics of Scheme and continues with an introduction to some of the more advanced features of the language.

The fourth edition stands substantially revised to bring the content up-to-date with the current Scheme standard (http://www.rbrs.org/). This book is not intended to supplant the current standard but rather to provide more comprehensive introduction and reference manual for the language with additional explanatory text and a large number of examples spread throughout the text. One entire chapter is dedicated to the presentation of a set of longer examples.

Answers to many of the exercises, a complete formal syntax of the Scheme, and a summary of forms and procedures are provided in appendices.

"This fourth edition builds on the strengths of the previous editions and provides a comprehensive, no-nonsense introduction to the Scheme programming language in its latest form. The combination of solidity and finesse displayed in this book makes it a reference text for educated computer scientists. The accompanying software, Petite Chez Scheme, makes it the ideal starting point for any programmer who wants to extend his or her repertoire with Scheme."

—OLIVIER DANVY, Aarhus University, Denmark, Coeditor-in-Chief of *Higher-Order and Symbolic Computation*

"Kent Dybvig's *The Scheme Programming Language* is to Scheme what Kernighan and Ritchie's *The C Programming Language* is to C. Dybvig's book is the book for either the novice or serious Scheme programmer. Its style, wit, and organization has reached a new high with the publication of the fourth edition."

—DANIEL P. FRIEDMAN, Department of Computer Science, Indiana University

"Students in my Programming Language Concepts class need to learn the basics of Scheme in a few days, and to pick up harder concepts throughout the course. For nineteen years, *The Scheme Programming Language* has been an excellent guide for them. Dybvig's rapid-fire prose and examples serve both the Scheme beginner and the experienced programmer in need of a reference. Seldom do my students make a point of praising a computer science textbook; that happens over and over with this one."

—CLAUDE W. ANDERSON, Rose-Hulman Institute of Technology

Contents: Preface. Introduction. Getting Started. Going Further. Procedures and Variables Bindings. Control Operations. Operations on Objects. Input and Output. Syntactic Extension. Records. Libraries and Top-Level Programs. Exceptions and Conditions. Extended Examples. References. Answers to Selected Exercises. Formal Syntax. Summary of Forms. Index.

Latest Print 2011 / 504 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4300-9 / ₹ 395.00

MATLAB Programming

KHANNA, BHATT & KUMAR

MATLAB Essentials for Problem Solving

MANOJ KHANNA, *Associate Professor, Department of Electronics, Bhaskaracharya College of Applied Sciences (University of Delhi), Dwarka, New Delhi.*

GEETA BHATT, *Associate Professor, Department of Instrumentation, Bhaskaracharya College of Applied Sciences (University of Delhi), Dwarka, New Delhi.*

PAWAN KUMAR, *Assistant Professor, Department of Instrumentation, Bhaskaracharya College of Applied Sciences (University of Delhi), Dwarka, New Delhi.*

This textbook introduces powerful computational software tool called MATLAB. The main objective of this book is to expose the readers to MATLAB features that integrate computation, visualization and programming in an easy-to-use environment. This book covers built-in functions of MATLAB, commands and their applications in topics of mathematical physics and engineering mathematics.

The book is written in a very simple language and chapters are arranged sequentially. Each topic covered in this book, has its corresponding theoretical explanation prior to its MATLAB execution. The authoris explain concepts with the help of screenshots of the MATLAB software and programming codes with their outputs. This approach not only creates a direct link between the book and the MATLAB software but also imbibes the feeling of actual interaction with MATLAB software. A sufficient number of examples based on MATLAB programming codes have been worked out so that students can grasp the concepts, the ideas, and the results in an easy way. At the end of each chapter, students will have a chance to answer several application-based questions in exercise. All these features make this book to be used as a textbook for theoretical learning as well as for laboratory course.

The book is suitable for the undergraduate and postgraduate students of mathematics, physics, instrumentation and electronics. The undergraduate students of engineering will also find this book useful.

KEY FEATURES

- Explains subject matter on which MATLAB functions has used without referring to any separate textbook.
- Includes numerous solved problems of Differential Equation, Fourier, Laplace and Z-transform, Vector analysis, Signal generation using MATLAB.
- Contains significant information about topics in the form of boxed items for quick recap and revision.
- Enhances the understanding with the help of visual representation of concepts, block diagrams and creative images.

Contents: Preface. Acknowledgements. Introduction to MATLAB. Variables and Operators. Classification of Array. Character, String and Graphics. Logical Operation and Flow Control. Script and Function M-file. Differential Equation Using MATLAB. Fourier Series and Various Transforms Using MATLAB. Vector Analysis Using MATLAB. Signal Generation and Its Analysis. Appendices. Further Readings. Index.

Latest Print 2016 / 340 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5175-2 / ₹ 375.00 / (e-book also available)

KUMAR & LENINA

MATLAB: Easy Way of Learning

S. SWAPNA KUMAR, *Professor and Head, Department of Electronics and Communication Engineering, Vidya Academy of Science and Technology, Thrissur, Kerala.*

LENINA S V B, *Assistant Professor, Department of Electronics and Telecommunication Engineering, Shri Guru Gobind Singhji Institute of Engineering and Technology, Nanded, Maharashtra.*

MATLAB: Easy Way of Learning, covers exactly what students need to know in an introductory course. This comprehensive book helps reader in understanding all the aspects of MATLAB basics and applications in an easy way. The authors explain concepts by balanced treatment of theoretical and practical concepts with easy-to-understand programming codes and executions. The book is suitable for the postgraduate and undergraduate students of engineering and sciences streams.

KEY FEATURES

- Includes sufficient numbers of examples and illustrations.
- Blends self-contained and reader friendly approach for teaching the concepts related to Simulink, Fuzzy Logic, Neural Network and Signal and Image Processing.
- Covers wide ideas of applications through systematic and sequentially planned organized chapters.
- Introduces MATLAB functions and other special functions with the help of worked out programs.
- Provides Summary of the presented features, Review questions and Practice exercise at the end of each chapter that will reinforce the concepts.
- Explains concepts with the help of screenshots of the MATLAB software.

Contents: Preface. Acknowledgements. MATLAB: An Overview. Building MATLAB Expression. MATLAB Vector and Matrix. Algebra and Polynomials. Input-Output. Graphics in MATLAB. Flow Logic. MATLAB Programming: Introduction to M-files. MATLAB in Filter Application. Digital Signal and Image Processing with MATLAB. MATLAB and Simulink. MATLAB in Fuzzy Logic. MATLAB in Neural Network. MATLAB Graphical User Interfaces. Appendix. Suggested Reading. Index.

Latest Print 2016 / 460 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5165-3 / ₹ 395.00 / (e-book also available)

SINGH & CHAUDHURI

MATLAB Programming

Y. KIRANI SINGH, *Project Engineer, Centre for Development of Advanced Computing (CDAC), Kolkata.*

B.B. CHAUDHURI, *Professor and Head, Computer Vision and Pattern Recognition Unit, Indian Statistical Institute Kolkata.*

MATLAB is a very powerful, high-level technical computing language used by mathematicians, scientists and engineers to solve problems in a wide range of application areas. It also comes with several toolboxes to solve most common problems.

The book introduces MATLAB programming in simple language with numerous examples that help clarify the concepts. It is designed to enable readers develop a strong working knowledge of MATLAB and acquire programming skills to write efficient programs. The book is suitable for undergraduate and postgraduate engineering students, researchers and professionals who wish to learn this language quickly and more conveniently. The readers after going through this book will be able to write their own programs to solve scientific and engineering problems of varying complexity.

KEY FEATURES

- Use of system commands and problem-solving techniques in command windows is explained in simple and clear language.
- Handling of arrays and matrices, which are the main entities in MATLAB environment, is discussed extensively in separate chapters.
- Handling of cell arrays and structures is described clearly with examples.
- Techniques of developing new MATLAB programs using scripts and functions are explained in a systematic way.
- File-handling techniques are also demonstrated.
- Topics of two-dimensional graphics are discussed with illustrative plots.
- GUI programming is introduced in an easily understandable way.

Contents: Preface. Introduction. Common System Commands and Mathematical Operators. Handling of Arrays. Handling of Matrices. Strings, Time and Date. Cell Arrays and Structures. Programming in MATLAB, M-File Scripts. Programming in MATLAB, M-File Functions. File I/O Handling in MATLAB. Two-Dimensional Plots. Graphical User Interface. Bibliography. Index.

Latest Print 2015 / 388 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3081-8 / ₹ 325.00 / (e-book also available)

Assembly Language Programming

RAJAT MOONA

Assembly Language Programming in GNU/Linux for IA32 Architectures

RAJAT MOONA, *Professor of Computer Science and Engineering at Indian Institute of Technology Kanpur.*

This book provides an easy-to-understand, step-by-step approach to learning the fundamentals of Assembly language programming for Intel's architectures, using a GNU/Linux-based computer as a tool. Offering students of computer science and engineering a hands-on learning experience, the book shows what actions the machine instructions perform, and then presents sample programs to demonstrate their application.

The book is suitable for use during courses on Microprocessors, Assembly language programming, and Computer Organization in order to understand the execution model of processors. This knowledge also helps strengthen concepts when students go on to study operating systems and compiler construction.

The concepts introduced are reinforced with numerous examples and review exercises. An Instructor's CD provides all the programs given in the book and the solutions to exercises.

KEY FEATURES

- Discusses programming guidelines and techniques of using Assembly language programs
- Shows techniques to interface C and Assembly language programs
- Covers instructions from general purpose instruction sets of IA32 processors
- Includes MMX and MMX-2 instructions
- Covers SSE and SSE-2 instructions
- Explains input-output techniques and their use in GNU/Linux-based computers
- Explains GNU/Linux system calls along with methods to use them in programs
- Provides a list of suggested projects
- Gives ample references to explore further

Contents: Preface. Introduction. IA32 Processors. Basic Data Manipulation. Control Transfer. Arithmetic and Logic Instructions. String and Bit-Oriented Instructions. Linux Kernel Interface. Input-Output in Linux. Handling Real Number Arithmetic. SIMD Instruction Sets. Assembler Directives and Macros. **Appendices**—A: Number Representation System. B: IA32 Processor Instruction Set. C: Suggested Programming Exercises. D: GNU Assembler. E: GNU Linker. F: GNU Debugger. G: ASCII Character Set. H: References. Index.

Latest Print 2009 / 468 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3156-3 / ₹ 350.00

Computer Graphics and Multimedia

ALAVALA

Computer Graphics

CHENNAKESAVA R. ALAVALA, *Professor in the Department of Mechanical Engineering, Jawaharlal Nehru Technological University (JNTU), Hyderabad.*

This textbook presents the basic principles for the use and design of computer graphics systems, as well as illustrates algorithm implementations and graphics applications.

The book begins with an introduction to the subject and goes on to discuss various graphic techniques with the help of several examples and neatly drawn figures. It elaborates on methods for modelling and performing geometric transformations and methods for obtaining views in both two and three dimensions. With a programming-oriented approach, the book also describes all the processes used in computer graphics along with easy-to-read algorithms, which will enable students to develop their own software skills.

KEY FEATURES

- Provides necessary mathematics and fundamentals of C programming used for computer graphics.
- Demonstrates the implementation of graphics algorithms using programming examples developed in C.
- Gives a large number of worked-out examples to help students understand finer details of theory.
- Presents chapter-end-exercises including multiple choice questions, fill in the blanks, and true/false type questions with answers to quiz students on key learning points.

This book is primarily designed for the students of computer science and engineering, information technology, as well as students of MSc (computer science), BCA and MCA. It will be also useful to undergraduate students of mechanical, production, automobile, electronics and electrical and other engineering disciplines.

Contents: Preface. Introduction. Graphics Hardware. Computer Graphics Primitives. Polygon Filling Algorithms. Two-dimensional Geometric Transformations. Two-dimensional Viewing. Curve Representation. Surface Representation. Solid Representation. Three-dimensional Transformations. Three-dimensional Viewing. Hidden Surface/Line Removal Methods. Illumination Models and Rendering Methods. Computer Animation. Appendix A: Essential Mathematics for Computer Graphics. Appendix B: C Programming for Computer Graphics. Bibliography. Answers. Index.

Latest Print 2013 / 352 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3876-0 / ₹ 295.00 / (e-book also available)

DESAI

Computer Graphics

APURVA A. DESAI, *Professor and Head, Department of Computer Science, Veer Narmad South Gujarat University, Surat.*

This text not only covers all topics required for a fundamental course in computer graphics but also emphasizes a programming-oriented approach to computer graphics. The book helps the students in understanding the basic principles for design of graphics and in developing skills in both two- and three-dimensional computer graphics systems.

Written in an accessible style, the presentation of the text is methodical, systematic and gently paced, covering a range of essential and conceivable aspects of computer graphics, which will give students a solid background to generate applications for their future work.

The book, divided into 11 chapters, begins with a general introduction to the subject and ends with explaining some of the exciting graphics techniques such as animation, morphing, digital image processing, fractals and ray tracing. Along the way, all the concepts up to two-dimensional graphics are explained through programs developed in C.

This book is intended to be a course text for the B.Tech./M. Tech. students of Computer Science and Engineering, the B.Tech. students of Information Technology and the M.Sc. students pursuing courses in Computer Science, Information Science and Information Technology, as well as the students of BCA and MCA courses.

KEY FEATURES

- Fundamentals are discussed in detail to help the students understand all the needed theory and the principles of computer graphics.
- Extensive use of figures to convey even the simplest concepts.
- Chapter-end exercises include conceptual questions and programming problems.

Contents: Foreword. Preface. Acknowledgements. Overview of Computer Graphics. Mathematical Foundation for Computer Graphics. Graphics Primitives. Polygons. Geometric Transformations. Viewing in Two Dimensions. Graphics in Three Dimensions. Hidden Surfaces. Colours and Shading. Graphics Standards. Introduction to Advanced Graphics Techniques. Index.

Latest Print 2016 / 364 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3524-0 / ₹ 425.00 / (e-book also available)

EVANGELINE & ANITHA

Computer Graphics and Multimedia: Insights, Mathematical Models and Programming Paradigms

D. EVANGELINE, *Assistant Professor, Department of Information Technology, Kongu Engineering College, Erode, Tamil Nadu.*

S. ANITHA, *Assistant Professor, Department of Information Technology, Kongu Engineering College, Erode, Tamil Nadu.*

Nowadays, Computer Graphics and Multimedia have become crucial areas of study in the field of Computer Science and Information Technology. They have many applications in a number of areas, including entertainment, education, image processing, CAD/CAM, fine arts, and so on. Students not only need to have a firm grounding in these fields but also have to learn how to integrate these technologies to get the desired results.

This book, written in an easy-to-grasp style, equips the readers with all the basic and advanced concepts of computer graphics and multimedia. Inclusion of sufficient programs relating to C, OpenGL, VRML, Python Turtle Graphics and GKS helps the readers in generating realistic images.

The text not only incorporates standard algorithms but also keeps pace with the newly invented ones. It provides an insight into graphics programming using various software packages. In most of the chapters, a number of solved numerical problems are provided to help students learn the practical applications of the preceding concept.

Primarily intended for the undergraduate and postgraduate students of Computer Science and Engineering, Information Technology, and Mechanical Engineering, the book is equally useful for the students opting BCA, MCA, B.Sc (CS/IT), M.Sc. (CS/IT) and Multimedia courses.

SALIENT FEATURES OF THE BOOK

- Every chapter commences with the learning objectives that introduce the key concepts and ends with summary that rewinds the topics learnt in the chapter in a concise way.
- Ample figures and tables are provided to support the theories.
- Suggested readings broaden the scope for further study.
- Self-evaluation questions at the end of each chapter test the understanding of the concepts.

Contents: Preface. Acknowledgement. Introduction to Computer Graphics. Graphics Hardware and Software. Graphics Primitives. Two Dimensional Transformations. Two Dimensional Viewing and Clipping. Graphical User Interfaces and Interactive Input Devices. Three Dimensional Concepts. Three Dimensional Transformations. Three Dimensional Viewing. Visible Surface Detection Methods. Illumination and Color Models. Computer Animation and Realism. Multimedia Systems. Multimedia Compression and Decompression. Multimedia Authoring, User Interface and Hypermedia Messaging. Appendices. Index.

Latest Print 2016 / 512 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5223-0 / ₹ 595.00 / (e-book also available)

MUKHERJEE

Fundamentals of Computer Graphics and Multimedia

D.P. MUKHERJEE, *Electronics and Communications Sciences Unit, Indian Statistical Institute, Calcutta*.

Intended as a textbook for students of computer science and management, this study strives to bring the concept of multimedia and computer graphics into a single volume. The book covers most of the scan conversion algorithms and other necessary ingredients for realistic rendering, such as techniques of image clipping, illumination and shading. It lays down the fundamental principles of computer graphics and provides the methodologies and algorithms, which act as building blocks of advanced animation and rendering techniques. The emphasis is clearly on explaining the techniques and the mathematical basis.

The book also gives an introductory level description on graphics and audio and video hardware, which is sufficient for understanding some of the intricacies in these fields. Since graphics are best learnt with the help of computer implementation of the graphics algorithm, the pseudocodes and problems at the ends of chapters will encourage readers to implement some of the interesting applications of graphics.

KEY FEATURES

- Deals with the fundamentals of computer graphics and multimedia in a concise but reasonable manner.
- Devotes a separate chapter to animation techniques and a section on virtual reality.
- Provides a feel of the frontiers of computer graphics and multimedia for advanced reading.
- Serves as concise text for DOEACCC A level computer graphics course.

Contents: Preface. Applications. Graphic Devices. Drawing Geometry. Conics and Curves. Graphic Operations. 3D Graphics. Illumination and Shading. Tweening and Morphing. Graphic Standards. Multimedia. Appendix. Suggested Further Reading. Index.

Latest Print 2014 / 192 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-1446-7 / ₹ 175.00

MUKHERJEE & JANA

Computer Graphics: Algorithms and Implementations (with CD-ROM)

D.P. MUKHERJEE, *Electronics and Communications Sciences Unit, Indian Statistical Institute, Calcutta*.
DEBASISH JANA, *Manager, Software Development with TEOCO Software, Kolkata.*

Intended as a textbook on graphics at undergraduate and postgraduate level, the primary objective of the book is to seamlessly integrate the theory of Computer Graphics with its implementation. The theory and implementation aspects are designed concisely to suit a semester-long

course. Students of BE/BTech level of Computer Science, Information Technology and related disciplines will not only learn the basic theoretical concepts on Graphics, but also learn the modifications necessary in order to implement them in the discrete space of the computer screen. Practising engineers will find this book helpful as the C program implementations available in this book could be used as kernel to build a graphics system. This book is also suitable for the students of M.Sc. (Computer Science) and Computer Applications (BCA/MCA). To suit the present day need, the C implementations are done for Windows operating system exposing students to important concepts of message-driven programming. For wider acceptability, Dev C++ (an open source integrated windows program development environment) versions of the implementations of graphics programs are also included in the companion CD-ROM.

This book introduces the students to Windows programming and explains the building blocks for the implementation of computer graphics algorithms. It advances on to elaborate the two-dimensional geometric transformations and the design and implementation of the algorithms of line drawing, circle drawing, drawing curves, filling and clipping. In addition, this well-written text describes three-dimensional graphics and hidden surface removal algorithms and their implementations. Finally, the book discusses illumination and shading along with the Phong illumination model.

KEY FEATURES

- Includes fundamental theoretical concepts of computer graphics.
- Contains C implementations of all basic computer graphics algorithms.
- Teaches Windows programming and how graphics algorithms can be tailor-made for implementations in message-driven architecture.
- Offers chapter-end exercises to help students test their understanding.
- Gives a summary at the end of each chapter to help students overview the key points of the text.
- Includes a companion CD containing C programs to demonstrate the implementation of graphics algorithms.

Contents: Preface. Introduction to Windows Programming. Two-Dimensional Geometric Transformations. Line Drawing Algorithms. Circle Drawing. Drawing Curves. Filling Algorithms. Clipping Algorithms. Three-Dimensional Graphics. Hidden Surface Removal. Illumination and Shading. Suggested List of References. Index.

Latest Print 2015 / 596 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4089-3 / ₹ 395.00 / (e-book also available)

PAKHIRA

Computer Graphics, Multimedia and Animation, 2nd ed. (with CD-ROM)

MALAY K. PAKHIRA, *Professor in the Department of Computer Science and Engineering, Kalyani Government Engineering College, Kalyani, West Bengal.*

This book, now in its second edition, will help students build sound concepts which underlie the three distinct but related topics of Computer Graphics, Multimedia and Animation. These topics are of utmost importance because of their enormous applications in the fields of graphical user interfaces, multimedia and animation software development.

The treatment of the text is methodical and systematic, and it covers the basic principles for the use, design and implementation of computer graphics systems with a perfect balance in the presentation of theoretical and practical aspects. The second edition introduces the basics of fractal geometry and includes a companion CD containing a number of C programs to demonstrate the implementation of different algorithms of computer graphics.

Some of the outstanding features of the book are:

- **Algorithmic Presentation:** Almost all the processes, generally used in computer graphics, are described along with easy-to-read algorithms. These help students master basic concepts and develop their own software skills.
- **Clear Illustrations:** Descriptions of different devices and processes are illustrated with more than 250 neatly drawn figures.
- **Solved Problems:** Numerous solved problems and chapter-end exercises help students grasp finer details of theory.
- **Advanced Topics:** Chapter 6 includes schematics and algorithms to develop a display file based graphical system. Chapter 16 includes organizations of different types of commonly used graphic and image files. Knowledge of image file formats helps the developers in reading, manipulating and representing images according to their needs.

This text is primarily designed to meet the curriculum needs of courses in Computer Graphics and Multimedia for students pursuing studies in Computer Science and Engineering, Information Technology and Computer Applications.

Contents: Preface. Introduction. Graphical Input-Output Devices. Scan Conversion. Scan Conversion of Solids. 2-D Geometrical Transformations. Display Files and Segments. 3-D Geometrical Transformations. Projection. 2-D Viewing and Clipping. 3-D Viewing and Clipping. Curve Design. Hidden Surface Elimination. Light, Shades and Colours. Multimedia Basics. Virtual Reality. Graphic Image File Formats. Animation and Flash Overview. Bibliography. Index.

Latest Print 2016 / 420 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4127-2 / ₹ 395.00 / (e-book also available)

Numerical Methods

ASCHER & GREIF

First Course in Numerical Methods, A

URI M. ASCHER, *Professor of Computer Science at the University of British Columbia in Vancouver, Canada.*
CHEN GREIF, *Associate Professor of Computer Science at the University of British Columbia in Vancouver, Canada.*

A First Course in Numerical Methods is aimed at undergraduate and postgraduate students of all engineering disciplines and the students of mathematics and other science disciplines, to enable them to gain practical knowledge of modern techniques in scientific computing. Avoiding encyclopedic and heavily theoretical exposition, the book provides an in-depth treatment of fundamental issues and methods, the reasons behind the success and failure of numerical software, and fresh and easy-to-follow approaches and techniques.

The book takes an algorithmic approach, focusing on techniques that have a high level of applicability to engineering, computer science, and applied mathematics.

The book

- focuses on current methods, issues, and software while providing a comprehensive theoretical foundation, enabling those who need to apply the techniques to successfully design solutions to nonstandard problems.
- illustrates algorithms using the programming environment of MATLAB®, with the expectation that the reader will gradually become proficient in it while learning the material covered in the book.
- provides a variety of exercises within each chapter and review questions aimed at self-testing.

Contents: List of Figures. List of Tables. Preface. Numerical Algorithms. Roundoff Errors. Nonlinear Equations in One Variable. Linear Algebra Background. Linear Systems: Direct Methods. Linear Least Squares Problems. Linear Systems: Iterative Methods. Eigenvalues and Singular Values. Nonlinear Systems and Optimization. Polynomial Interpolation. Piecewise Polynomial Interpolation. Best Approximation. Fourier Transform. Numerical Differentiation. Numerical Integration. Differential Equations. Bibliography. Index.

Latest Print 2015 / 576 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4686-4 / ₹ 495.00

BISWAL

Numerical Analysis

PURNA CHANDRA BISWAL, *Assistant Professor in Mathematics, Parala Maharaja Engineering Colleage, Berhampur.*

Offering a clear, precise and accessible presentation, this book gives students the solid support they need to master basic numerical analysis techniques. It is suitable for a course in Numerical Methods for undergraduate students of all branches of engineering, students of Master of Computer Applications (MCA) and Bachelor of Computer Applications (BCA), and students pursuing diploma courses in engineering disciplines. The book can also serve as a useful reference for students of mathematics and statistics.

The book focuses on core areas of numerical analysis such as errors in numerical computation, root finding, solution of algebraic equations, interpolation, numerical calculus, initial value problems, boundary value problems and eigenvalues. The underlying mathematical concepts are highlighted through numerous worked-out examples. The section-end exercises contain plenty of problems with appropriate hints in order to motivate the students to work out problems for a deeper insight into subject concepts.

Contents: Preface. Number Systems and Errors. Root Finding. Numerical Solution of Linear System. Interpolation. Spline. Numerical Differentiation. Integration. Initial Value Problem. Eigenvalue. Method of Weighted Residuals. Bibliography. Index.

Latest Print 2008 / 368 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3444-1 / ₹ 250.00

GHOSH

Numerical Methods with Computer Programs in C++ (with CD-ROM)

PALLAB GHOSH, *Assistant Professor in the Department of Chemical Engineering, IIT Guwahati.*

Today, C++ is gaining prominence as a programming language and is emerging as a preferred choice of programmers because of its many attractive features and its user-friendly nature. And this text, intended for undergraduate students of engineering as well as for students of Mathematics, Physics and Chemistry, shows how numerical methods can be applied in solving engineering problems using C++. The text, while emphasizing the application aspects, also provides deep insight into the development of numerical algorithms.

KEY FEATURES

- Gives detailed step-by-step description of numerical algorithms and demonstrates their implementation. Each method is illustrated with solved examples.
- Provides C++ programs on many numerical algorithms. Elementary problems from various branches of science and engineering are solved.
- Contains 79 programs written in C++.
- Provides about 200 solved examples which illustrate the concepts.
- The Exercise problems, with various categories like Quiz, Analytical and Numerical Problems and Software Development Projects, drill the students in self-study.
- The accompanying **CD-ROM** contains all the programs given in the book.

Students as well as programmers should find this text immensely useful for its numerous student-friendly

features coupled with the elegant exposition of concepts and the clear emphasis on applications.

Contents: Preface. C++ and Object-Oriented Programming. Accuracy and Stability in Numerical Computing. Solution of Simultaneous Linear Algebraic Equations. Solution of Nonlinear Equations. Eigenvalues and Eigenvectors of Matrices. Statistical Analysis of Data. Curve Fitting. Sorting of Data. Approximation of Functions. Interpolation. Numerical Integration. Numerical Differentiation. Solution of Ordinary Differential Equations: Initial Value Problems. Solution of Ordinary Differential Equations: Boundary Value Problems. Numerical Solution of Partial Differential Equations. Appendix. Suggested Further Reading. Index.

Latest Print 2009 / 648 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2987-4 / ₹ 395.00 / (e-book also available)

MISHRA

Computer Oriented Numerical and Statistical Methods

SANT SHARAN MISHRA, *Reader, Department of Mathematics and Statistics at Dr. Ram Manohar Lohia Avadh University, Faizabad.*

This comprehensive text provides a thorough understanding of mathematical concepts and their applications with special emphasis on computational algorithms. The book gives a detailed discussion on all the relevant topics of both numerical and statistical methods, which are nowadays very important at computing level. It also includes the basic issues related to theory of estimation and testing of hypothesis, various sampling tests, and analysis of variance with plenty of illustrations. The topics covered in this book are supported by a large number of worked-out examples, C programs and algorithms to facilitate clear understanding of various theories discussed on numerical and statistical methods.

The text is intended for the undergraduate students of computer engineering and postgraduate students of computer applications.

Contents: Preface. Computer Arithmetic. Algebraic and Transcendental Equations. Solution of Simultaneous Linear Algebraic Equations. Interpolation. Numerical Differentiation and Integration. Numerical Solution of Ordinary Differential Equations. Curve Fitting. Time Series, Forecasting and Quality Control. Statistics, Data and Frequency. Measures of Central Tendency and Dispersion. Correlation and Regression Analysis. Control Structures. Theory of Estimation and Testing of Hypothesis. Small Sampling and Analysis of Variance. Appendix. Index.

Latest Print 2013 / 512 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4780-9 / ₹ 395.00 / (e-book also available)

MOLER

Numerical Computing with MATLAB (Revised)

CLEVE B. MOLER, *Chairman and Chief Scientist at The MathWorks, Inc.*

Numerical Computing with MATLAB is a lively textbook for an introductory course in numerical methods, MATLAB, and technical computing. The emphasis is on the informed use of mathematical software, in particular, the presentation helps readers learn enough about the mathematical functions in MATLAB to use them correctly, appreciate their limitations, and modify them appropriately. The book makes extensive use of computer graphics, including interactive graphical expositions of numerical algorithms. It provides more than 70 M-files, which can be downloaded from the text website www.mathworks.com/moler. Many of the more than 200 exercises involve modifying and extending these programs.

Motivating applications included in the book are modern problems from cryptography, touch-tone dialing, Google page ranking, atmospheric science, and image processing, as well as classical problems from physics and engineering.

The book is useful for students of science and all disciplines of engineering, both at the undergraduate and postgraduate levels.

Contents: Preface. Introduction to MATLAB. Linear Equations. Interpolation. Zeros and Roots. Least Squares. Quadrature. Ordinary Differential Equations. Fourier Analysis. Random Numbers. Eigenvalues and Singular Values. Partial Differential Equations. Bibliography. Index.

Latest Print 2012 / 348 pages / 17.8 × 23.5 cm
ISBN-978-81-203-4681-9 / ₹ 295.00

RAJARAMAN

Computer Oriented Numerical Methods, 3rd ed.

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

This book is a concise presentation of the basic concepts used in evolving numerical methods with special emphasis on developing computational algorithms for solving problems in algebra and calculus on a computer.

It is written for undergraduate science and engineering students who have taken a first course in differential and integral calculus. The approach is to ensure conceptual understanding of the numerical methods by relying on students' geometric intuition.

The book provides coverage of iterative methods for solving algebraic and transcendental equations, direct and iterative methods of solving simultaneous algebraic equations, numerical methods for differentiation and

integration, and solution of ordinary differential equations with initial conditions.

The formulation of algorithms is illustrated with a number of solved examples and an algorithmic language based on English (and similar to PASCAL) is used to express the logic of the numerical procedures. This approach is thus different from that used in most books which either use a programming language like FORTRAN or use flow charts to express algorithms.

The solutions to selected problems have been provided at the end of the book.

Contents: Preface to the Third Edition. Computational Algorithms. Computer Arithmetic. Iterative Methods. Solution of Simultaneous Algebraic Equations. Interpolation. Least Squares Approximation of Functions. Approximation of Functions. Differentiation and Integration. Numerical Solution of Differential Equations. Solutions to Selected Exercises. Index.

Latest Print 2016 / 208 pp. / 15.3 × 22.9 cm
ISBN-978-81-203-0786-5 / ₹ 150.00 / (e-book also available)

RAO

Numerical Methods for Scientists and Engineers, 3rd ed.

K. SANKARA RAO, *former Professor of Mathematics, Anna University, Chennai had earlier been Senior Scientist/ Engineer, Applied Mathematics Division of Vikram Sarabhai Space Centre (VSSC), Trivandrum.*

Primarily written as a textbook, this **third** edition provides a complete course on *numerical methods* for under-graduate students in all branches of engineering, postgraduate students in mathematics and physics, and students pursuing courses in Master of Computer Applications (MCA). Besides students, those appearing for competitive examinations, research scholars and professionals engaged in numerical computations, will treasure this edition for its in-depth analysis, systematic treatment and clarity of approach.

The third edition has been updated with new material comprising new methods and concepts and additional chapters on Boundary Value Problems and Approximation of Functions. It introduces the basics in computing, stresses on errors in computation, discusses various direct and iterative methods for solving algebraic and transcendental equations and a method for solving a system of nonlinear equations, linear system of equations, matrix inversion and computation of eigenvalues and eigenvectors of a matrix.

The book provides a detailed discussion on curve fitting, interpolation and cubic spline interpolation, numerical differentiation and integration. It also presents, various single step and predictor–corrector methods for solving ordinary differential equations, finite difference methods for solving partial differential equations with the concepts of truncation error and stability. Finally, it concludes with a treatment of numerical methods for solving boundary value problems, least squares, Chebyshev, Pade polynomial approximations and Fourier series approximation to a real continuous function.

KEY FEATURES

- Provides altogether about 300 examples, of which about 125 are worked-out examples.
- Gives detailed hints and solutions to examples under Exercises.

Contents: Preface. Preface to the Second Edition. Basics in Computing. Solution of Algebraic and Transcendental Equations. Solution of Linear System of Equations and Matrix Inversion. Eigenvalue Problems. Curve Fitting. Interpolation. Numerical Differentiation and Integration. Ordinary Differential Equations. Parabolic Partial Differential Equations. Elliptic Partial Differential Equations. Hyperbolic Partial Differential Equations. Boundary Value Problems. Approximation of Functions. Appendix. Bibliography. Answers to Exercises. Index.

Latest Print 2014 / 368 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3217-1 / ₹ 275.00 / (e-book also available)

SASTRY

Introductory Methods of Numerical Analysis, 5th ed.

S.S. SASTRY, *Formerly, Scientist/Engineer SF in the Applied Mathematics Division of Vikram Sarabhai Space Centre, Trivandrum.*

This thoroughly revised and updated text, now in its fifth edition, continues to provide a rigorous introduction to the fundamentals of numerical methods required in scientific and technological applications, emphasizing on teaching students numerical methods and in helping them to develop problem-solving skills.

While the essential features of the previous editions such as References to MATLAB, IMSL, Numerical Recipes program libraries for implementing the numerical methods are retained, a chapter on Spline Functions has been added in this edition because of their increasing importance in applications.

This text is designed for undergraduate students of all branches of engineering.

NEW TO THIS EDITION

- Includes additional modified illustrative examples and problems in every chapter.
- Provides answers to all chapter-end exercises.
- Illustrates algorithms, computational steps or flow charts for many numerical methods.
- Contains four model question papers at the end of the text.

Contents: Preface. Errors in Numerical Calculations. Solution of Algebraic and Transcendental Equations. Interpolation. Least Squares and Fourier Transforms. Spline Functions. Numerical Differentiation and Integration. Numerical Linear Algebra. Numerical Solution of Ordinary

Differential Equations. Numerical Solution of Partial Differential Equations. Numerical Solution of Integral Equations. The Finite Element Method. Bibliography. Model Test Papers. Index.

Latest Print 2015 / 464 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4592-8 / ₹ 295.00 / (e-book also available)

SHAH

Numerical Methods with C++ Programming

NITA H. SHAH, *Reader in the Department of Mathematics, Gujarat University. She is a post-doctoral fellow from University of New Brunswick, Canada and is visiting faculty at various universities.*

The rapid development of high speed digital computers and the increasing desire for numerical answers to applied problems have led to increased demands in the courses dealing with the methods and techniques of numerical analysis. Numerical methods have always been useful but their role in the present-day scientific research has become prominent. For example, they enable one to find the roots of transcendental equations and in solving nonlinear differential equations. Indeed, they give the solution when ordinary analytical methods fail.

This well-organized and comprehensive text aims at enhancing and strengthening numerical methods concepts among students using C++ programming, a fast emerging preferred programming language among software developers. The book provides a synthesis of both theory and practice. It focuses on the core areas of numerical analysis including algebraic equations, interpolation, boundary value problem, and matrix eigenvalue problems. The mathematical concepts are supported by a number of solved examples. Extensive self-review exercises and answers are provided at the end of each chapter to help students review and reinforce the key concepts.

KEY FEATURES

- C++ programs are provided for all numerical methods discussed.
- More than 400 unsolved problems and 200 solved problems are included to help students test their grasp of the subject.

The book is intended for undergraduate and postgraduate students of Mathematics, Engineering and Statistics. Besides, students pursuing BCA and MCA and having Numerical Methods with C++ Programming as a subject in their course will benefit from this book.

Contents: Preface. Theory of Equations. Roots of Algebraic and Transcendental Equations. Solution of Simultaneous Linear Algebraic Equations. Curve Fitting. Interpolation. Numerical Differentiation and Integration. Numerical Solution of Ordinary Differential Equations. Numerical Solution of Partial Differential Equations. Index.

Latest Print 2015 / 324 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3596-7 / ₹ 325.00

THANGARAJ

Computer-Oriented Numerical Methods

P. THANGARAJ, *Professor and Head, Department of Computer Science and Engineering, Bannari Amman Institute of Technology, Sathyamangalam.*

Numerical methods are powerful problem-solving tools. Techniques of these methods are capable of handling large systems of equations, nonlinearities and complicated geometries in engineering practice which are impossible to be solved analytically. Numerical methods can solve the real world problem using the C program given in this book.

This well-written text explores the basic concepts of numerical methods and gives computational algorithms, flow charts and programs for solving nonlinear algebraic equations, linear equations, curve fitting, integration, differentiation and differential equations.

The book is intended for students of B.E. and B.Tech. as well as for students of B.Sc. (Mathematics and Physics).

KEY FEATURES

- Gives clear and precise exposition of modern numerical methods.
- Provides mathematical derivation for each method to build the student's understanding of numerical analysis.
- Presents C programs for each method to help students to implement the method in a programming language.
- Includes several solved examples to illustrate the concepts.
- Contains exercises with answers for practice.

Contents: List of Algorithms. List of Flow Charts. List of Programs. Preface. Numerical Solution of Algebraic and Transcendental Equations. Simultaneous Linear Non-Homogeneous Algebraic Equations. Iterative Method for Eigenvalues. Interpolation. Numerical Differentiation and Numerical Integration. Difference Equations. Numerical Solution of Ordinary Differential Equations. 8. Boundary Value Problems. Index.

Latest Print 2013 / 608 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3539-4 / ₹ 350.00 / (e-book also available)

WADHWA

Numerical Analysis with Algorithms and Computer Programs in C++

AJAY WADHWA, *Associate Professor of Physics at Sri Guru Tegh Bahadur Khalsa College, University of Delhi.*

This concise introduction to *Numerical Methods* blends the traditional algebraic approach with the computer-based approach, with special emphasis on evolving algorithms which have been directly transformed into programs in C++. Each numerical method used for solving nonlinear algebraic equations, simultaneous linear equations, differentiation, integration, ordinary differential equations, curve-fitting, etc. is accompanied by an algorithm and the corresponding computer program.

All computer programs have been test run on Linux 'Ubuntu C++' as well as Window-based 'Dev C++', Visual C++ and 'Turbo C++' compiler systems. Since different types of C++ compilers are in use today, instructions have been given with each computer program to run it on any kind of compiler. To this effect, an introductory chapter on C++ compilers has been added for ready reference by the students and teachers.

Another major feature of the book is the coverage of the practicals prescribed for laboratory work in Numerical Analysis. Each chapter has a large number of laboratory tested programming examples and exercises including questions from previous years' examinations.

This textbook is intended for the undergraduate science students pursuing courses in BSc (Hons.) Physics, BSc (Hons.) Electronics and BSc (Hons.) Mathematics. It is also suitable for courses on Numerical Analysis prescribed for the engineering students of all disciplines.

Contents: Preface. A Note on C++ Compilers. Estimation of Errors in Computation. Numerical Methods for Non-Linear and Transcendental Equations. Solution of Simultaneous Linear Equations. Interpolation. Numerical Differentiation. Numerical Integration. Numerical Solution of Ordinary Differential Equations. Curve Fitting. Index.

Latest Print 2012 / 200 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4545-4 / ₹ 195.00 / (e-book also available)

Computer Simulation

DEO

System Simulation with Digital Computer

NARSINGH DEO, *Charles E. Millican Professor, Department of Computer Science, University of Central Florida.*

This is a compact and basic textbook for a first course in simulation, designed to provide a thorough grounding in the use of simulation techniques to solve simple, but mathematically intractable problems for studying the discipline of digital computer simulation. To be able to use this powerful method, a certain amount of well-balanced experience in the areas of (i) modelling, (ii) computer programming, and (iii) statistics is required. The purpose of the book is to get the reader started. Designed for students of engineering and business administration as well as for practising systems analysts, industrial engineers and operations research workers, it describes the use of digital computers for simulating engineering and business systems. It is assumed that the reader knows computer programming and has some knowledge of FORTRAN, as it is author's firm conviction that the first course in simulation should be taught using a general-purpose language.

The book presents a complete overview of simulation of discrete, stochastic, dynamic systems with emphasis on simulation of continuous systems. It also provides indepth examples of simulation from three very important areas of problems, namely queuing systems, stochastic networks, and inventory systems.

Techniques of simulation are thus highlighted through examples which encourage learning by doing, by solving a large variety of actual problems, and by watching how others solve them.

Contents: Preface. Acknowledgements. Introduction. Simulation of Continuous Systems. Discrete System Simulation. Simulation of Queueing Systems. Simulation of a PERT Network. Inventory Control and Forecasting. Design and Evaluation of Simulation Experiments. Simulation Languages. Index.

Latest Print 2013 / 216 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-0028-6 / ₹ 175.00 / (e-book also available)

PANNEERSELVAM & SENTHILKUMAR

System Simulation, Modelling and Languages

R. PANNEERSELVAM, *Professor, Department of Management Studies, School of Management, Pondicherry University, Puducherry.*

P. SENTHILKUMAR, *Manager, Programme Management, Ashok Leyland, Chennai.*

Designed as a text for undergraduate students (B.Tech./B.E.) of Computer Science and Engineering and IT, Mechanical Engineering and Mechatronics Engineering, and post-graduate students (M.Tech./M.E., M.Sc.) of Computer Science and Engineering and IT and Industrial Engineering, as well as for Bachelor and Master of Computer Applications (BCA/MCA), this well-organized book gives an in-depth analysis of the concepts of system simulation modelling and simulation languages. The book provides detailed discussions on the fundamental and advanced concepts of simulation.

The book begins with the concept of system and the different terminologies associated with the system. Then it presents the different methods of random number generation and their tests. Besides, the text dwells on different probability distributions and their random variates, which are used in the simulation model, and describes various simulation languages such as GPSS, Simula I, SIMSCRIPT, CSL, GASP, OPS-3, DYNAMO, SIMAN and SLAM II. Further, it gives a comprehensive coverage of different queueing systems with illustrative examples as well as the logics of simulation model for both single-server and parallel-server queueing systems. The concluding chapters deal extensively with GPSS language, Arena simulation software and ProModel simulation software.

KEY FEATURES

- Follows a step-by-step approach to derive the test results.
- Gives a large number of **solved examples** and well-designed **chapter-end questions**.
- Includes several real-life **Case Studies** to illustrate the concepts discussed.

Contents: Preface. System Concept. Introduction to Simulation. Methods of Random Number Generation

and Their Tests. Probability Distributions and Random Variates. Introduction to Simulation Languages. Queueing Theory. Simulation Using High-Level Languages. General-Purpose Simulation System (Section 1). General-Purpose Simulation System (Section 2). General-Purpose Simulation System (Section 3). Simula Language. SIMSCRIPT III Language. SIMAN Language. SLAM II (Simulation Language for Alternative Modelling). Arena Simulation Software. ProModel Simulation Software. Appendixes. References. Further Reading. Index.

Latest Print 2013 / 444 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4706-9 / ₹ 375.00 / (e-book also available)

RAJARAMAN

Analog Computation and Simulation

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

Nowadays one hardly finds a book on analog computer or computation. This is a book on techniques of using analog computers for solving differential equations and for simulating dynamic systems. It presents analog computers to those with little background in electronics. Some knowledge of ordinary differential equations and basics of physics is the only requirement to understand most of the book.

The numerous examples in the text illustrate scaling of analog computers for solving both linear and non-linear problems. Systematic methods of checking analog computer solutions, and iterative analog computations are also outlined.

This book is intended for use in colleges for introductory courses on analog computation. The subject matter of the text is also useful in courses relating to continuous systems simulation; as an adjunct text for signal systems, control systems, chemical process control, mechanical vibrations and dynamics, this book is very beneficial.

Contents: Preface. Introduction. Linear Computing Circuits. Time Scaling. Amplitude Scaling. Combined Time and Amplitude Scaling. Systematic Checking of Computer Solutions. Simulation of Transfer Functions. Applications of Multipliers. Non-linear Function Generators. Iterative Operation of Analog Computers. Digital Simulation of Analog Computation. Appendix—Laboratory Exercises. Index.

Latest Print 1995 / 200 pp. / 21.6 × 27.8 cm
ISBN-81-203-0011-4 / ₹ 85.00

Data Structures

ARPITA GOPAL

Magnifying Data Structures

ARPITA GOPAL, *Director-MCA at Sinhgad Institute of Business Administration and Research, Pune.*

This book, the second of the *Magnifying Series*, provides a comprehensive account of the various methods and techniques of representing data structures. It presents all the important data structures used in system programming and application programming along with their definitions, operations, implementation and applications.

The book first introduces the students to basic programming concepts to help them build a strong foundation for understanding data structures. It then explains the mathematical and logical aspects of data in the form of abstract data types. Several types of data structures such as arrays, stacks, queues, linked list and trees are discussed with a diagrammatic approach. The text also deals with threading of a tree, AVL tree, M-ary tree as well as graphs. In addition, different common sorting and searching algorithms are discussed.

KEY FEATURES

- Explains the process of abstraction using the C language.
- Presents step-by-step analysis and development of algorithms to implement various data structures.
- Develops building blocks for design of complex programs.
- Provides a number of worked-out examples to illustrate the concepts.
- Includes chapter-end exercises for practice.

The text is designed for the students of computer applications (BCA/MCA), computer science (BSc/MSc), computer science and engineering and information communication technology (BE/B.Tech.) and also for the students of other engineering disciplines.

Contents: Preface. Acknowledgements. Programming Concepts. Arrays and Structures. ADT Array. ADT Stack. ADT Queue. ADT Linked List. ADT Tree. Advance Trees. ADT Graphs. Sorting Searching and Algorithm Complexity. Index.

Latest Print 2010 / 456 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4019-0 / ₹ 325.00 / (e-book also available)

KUSHWAHA & MISRA

Data Structures: A Programming Approach with C, 2nd ed. (with CD-ROM)

DHARMENDER SINGH KUSHWAHA, *Associate Professor, Department of Computer Science & Engineering, Motilal Nehru National Institute of Technology (MNNIT) Allahabad. He is a member of IEEE.*

ARUN KUMAR MISRA, *Professor, Department of Computer Science & Engineering, MNNIT Allahabad. He is a senior member of IEEE and member of ISTE and CSI.*

This well-organized book, now in its second edition, discusses the fundamentals of various data structures using C as the programming language. Beginning with the basics of C, the discussion moves on to describe Pointers, Arrays, Linked lists, Stacks, Queues, Trees, Heaps, Graphs, Files, Hashing, and so on that form the base of data structure. It builds up the concept of Pointers in a lucid manner with suitable examples, which forms the crux of Data Structures. Besides updated text and additional

multiple choice questions, the new edition deals with various classical problems such as 8-queens problem, towers of Hanoi, minesweeper, lift problem, tic-tac-toe and Knapsack problem, which will help students understand how the real-life problems can be solved by using data structures. The book exhaustively covers all important topics prescribed in the syllabi of Indian universities/ institutes, including all the Technical Universities and NITs.

Primarily intended as a text for the undergraduate students of Engineering (Computer Science/Information Technology) and postgraduate students of Computer Application (MCA) and Computer Science (M.Sc.), the book will also be of immense use to professionals engaged in the field of computer science and information technology.

KEY FEATURES

- Provides more than 160 complete programs for better understanding.
- Includes over 470 MCQs to cater to the syllabus needs of GATE and other competitive exams.
- Contains over 500 figures to explain various algorithms and concepts.
- Contains solved examples and programs for practice.
- Provides companion CD containing additional programs for students' use.

Contents: Preface. A Quick Overview of C Fundamentals. Introduction to Data Structure. Understanding Pointers in C. Recursion. Arrays. Linked List. Sorting. Strings. Stacks. Queues. Trees. Advanced Topics in Trees. Heap Data Structure. Graphs. Files. Hashing. Data Structure Projects. Index.

Latest Print 2014 / 728 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5029-8 / ₹ 495.00 / (e-book also available)

KUTTI & PADHYE

Data Structures in C++

N.S. KUTTI, *Faculty of Science and Technology, School of Computing and Mathematics, Deakin University, Geelong, Victoria (Australia).*
P.Y. PADHYE, Dr. Ing., (Dresden), *Melbourne Institute of Business Technology, Melbourne.*

This compact and comprehensive book provides an introduction to data structures from an object-oriented perspective using the powerful language C++ as the programming vehicle. It is designed as an ideal text for the students before they start designing algorithms in C++.

The book begins with an overview of C++, then it goes on to analyze the basic concepts of data structures, and finally focusses the reader's attention on abstract data structures. In so doing, the text uses simple examples to explain the meaning of each data type. Throughout, an attempt has been made to enable students to progress gradually from simple object-oriented abstract data structures to more advanced data structures. A large number of worked examples and the end-of-chapter exercises help the students reinforce the knowledge gained.

Intended as a one-semester course for undergraduate students in computer science and for those who offer this course in engineering and management, the book should also prove highly useful to those IT professionals who have a keen interest in the subject.

Contents: Preface. INTRODUCTION—Why was C++ developed? Features of C++. Conventions used in C++ Programs. DATA TYPES—Introduction. What is Data Type? What is Data Structure? Simple Data Types in C++. Homogeneous Aggregate Data Types. Heterogeneous Aggregate Data Types. What is Data Abstraction? Formal Definition of Data Abstraction. What is Abstract Data Type? ADT Types. STARTING WITH ABSTRACT DATA TYPES—Introduction. Complex Number as ADT. Rational Number as ADT. Set as ADT. ARRAYS—Introduction. Operations on Arrays. Types of Arrays. Fixed Size Array (FSA) ADT. Variable Size Array (VSA) ADT. STRINGS—Introduction. String Representation. Operations on Strings. Types of ADT. Fixed Size Static String (FSSS) ADT. Variable Size Static String (VSSS) ADT. Limited Dynamic String ADT. Unlimited Dynamic String ADT. String Class for Text Editing. LINKED LISTS—Introduction. Dynamic Storage Management. Array-Based Linked List ADT. Linked List Data Structures. Singly Linked List ADT. Doubly Linked List ADT. Circular Linked List ADT. STACK—Introduction. Applications of Stack Data Structure. Operations on Stack ADT. Types of Stack Implementations. Fixed Size Stack ADT. Variable Size Stack ADT. Generic Stack ADT. QUEUES—Introduction. Structure of a Queue. Operations on a Queue. A Simple Static Array-based Implementation. Queue-based on Linked List. The ADT Priority Queue. TREES—Introduction. Multiway Trees. Binary Trees. Binary Tree Implementation using Arrays. Implementing Multiway Trees. GRAPHS—Introduction. Basic Concepts and Terms. Graph Representation. Transitive Closure. Warshall's Algorithm. Shortest Paths. Dynamic Arrays for Graph Algorithms. Bibliography. Index.

Latest Print 2011 / 216 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-1443-6 / ₹ 150.00

NAIR & MAHALEKSHMI

Data Structures in C

ACHUTHSANKAR S. NAIR, *Honorary Director, Centre for Bioinformatics, University of Kerala, Thiruvanthapuram.*
T. MAHALEKSHMI, *Principal, Sree Narayana Institute of Technology, Vadakevilla, Kollam, Kerala.*

This compact and student-friendly book deals with data structures, particularly user defined data structures, such as linked lists, stacks, queues, trees, graphs and files, using C as the programming language. The text begins with an introduction to the most common concepts of C and then it goes on to give a detailed discussion on the processing of one-dimensional and two-dimensional arrays, their internal organization, and handling arrays using pointers. Besides, it dwells on the dynamic linked list and its variations such as doubly linked lists and circular

linked lists, with the help of memory diagrams. The text delineates the static and dynamic imple-mentations of stacks and queues, the application, implementation, and construction of binary trees, and representation of graphs and graph traversal. The book concludes with a discussion on the various types of searching and sorting techniques, with the help of visual examples.

KEY FEATURES

- Provides visualization model for abstract concepts.
- Presents the shortest possible program.
- Provides conceptual exercises before programming examples.

The book is intended for the undergraduate students of Engineering (Computer Science/Information Technology), and undergraduate and postgraduate students of Computer Applications, Computer Science and Information Technology.

Contents: Preface. Acknowledgements. Overview. Arrays. Linked List. Stacks and Queues. Binary Trees. Graphs. Searching, Sorting and Files. Appendix: ASCII Table. Index.

Latest Print 2011 / 296 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3642-1 / ₹ 250.00 / (e-book also available)

SAMANTA

Classic Data Structures, 2nd ed. (with CD-ROM)

D. SAMANTA, *Associate Professor at the School of Information Technology, Indian Institute of Technology Kharagpur.*

This book is the **second edition** of a text designed for undergraduate engineering courses in Data Structures. The treatment of the subject in this second edition maintains the some general philosophy as in the first edition but with significant additions. These changes are designed to improve the readability and understandability of all algorithms so that the students acquire a firm grasp of the key concepts.

The book provides a complete picture of all important data structures used in modern programming practice. It shows:

- various ways of representing a data structure
- different operations to manage a data structure
- several applications of a data structure

The algorithms are presented in English-like constructs for ease of comprehension by students, though all of them have been implemented in C language to test their correctness.

KEY FEATURES

- Red-black tree and spray tree are discussed in detail
- Includes a new chapter on **Sorting**
- Includes a new chapter on **Searching**
- Includes a new appendix on Mathematical Background
- Includes a new appendix on Analysis of Algorithms for those who may be unfamiliar with the concepts of algorithms
- Includes a new appendix on selected GATE questions
- Provides numerous section-wise assignments in each chapter
- Also included are exercises—Problems to Ponder—in each chapter to enhance learning

The book is suitable for students of (i) computer science, (ii) computer applications, (iii) information and communication technology (ICT), and (iv) computer science and engineering.

Contents: Preface. Preface to the First Edition. Introduction and Overview. Arrays. Linked Lists. Stacks. Queues. Tables. Trees. Graphs. Sets. Sorting. Searching. Appendix A: Analysis of Algorithms. Index.

Latest Print 2016 / 824 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3731-2 / ₹ 495.00 / (e-book also available)

Big Data/Data Warehousing and Data Mining

EAGLE & GREENE

Reality Mining: Using Big Data to Engineer: A Better World

NATHAN EAGLE, *one of the "50 people who will change the world" on the 2012 Wired Smart List, is the co-founder and CEO of Jana, a company that helps global brands reach customers in emerging markets via mobile airtime. He holds faculty positions at Harvard and Northeastern University.*

KATE GREENE *is a freelance science and technology journalist based in San Francisco whose work has appeared in The Economist, Discover, and U.S. News & World Report, among other publications.*

Big Data is made up of lots of little data: numbers entered into cell phones, addresses entered into GPS devices, visits to websites, online purchases, ATM transactions, and any other activity that leaves a digital trail. This book on Big Data cuts through the hype to explore the potential of Big Data. It shows the ways in which the analysis of Big Data can be used to improve human systems as varied as political polling and disease tracking, while considering user privacy.

The authors describe Reality Mining at five different levels: the individual, the neighbourhood and organization, the city, the nation and the world. For each level, they first offer a non-technical explanation of data collection methods and then describe applications and systems that have been or could be built. Thus, making it understandable to everyone. Some examples are a mobile app that helps smokers quit smoking; a workplace "knowledge system"; the use of GPS, Wi-Fi, and mobile phone data to manage and predict traffic flows; and analysis of social media to track the spread of disease. Their argument being how

Big Data, used respectfully and responsibly, can help people live better, healthier, and happier lives.

The book will be useful for students of management, computer science, media studies and professionals as well.

We look at digital devices as things that are meant to serve us. In Reality Mining we are taken on a journey from individuals to countries, to illustrate the true transformative power that the collective use of these digital devices brings to humanity. A fascinating trip guided by researchers who have successfully bridged discovery with entrepreneurship!

—**Albert-Laszló Barabasi,** Robert Gray Doge Professor of Network Science, Northeastern University; author of *Linked*

A smart look at how Big Data transforms our lives, from the microcosm of the individual to the macrocosm of the planet. Eagle's pioneering research in data-mining human behavior is inspiring, while Greene's insights on what it all means make Reality Mining an indispensable book. And importantly, privacy issues are not an after-thought but are interlaced throughout. as it should be.

—**Kenneth Cukier,** Coauthor of *Big Data*: *A Revolution That Will Transform How We Live, Work, and Think*

Contents: Introduction. I. The Individual (One Person)—Mobile Phones, Sensors, and Lifelogging: Collecting Data from Individuals While Considering Privacy. Using Personal Data in a Privacy-Sensitive Way to Make a Person's Life Easier and Healthier. II. The Neighborhood and the Organization (10 to 1,000 People)—Gathering Data from Small Heterogeneous Groups. Engineering and Policy: Building more Efficient Businesses, Enabling Hyperlocal Politics, Life Queries, and Opportunity Searches. III. The City (1,000 to 1,000,000 People)—Traffic Data, Crime Stats, and Closed-Circuit Cameras: Accumulating Urban Analytics. Engineering and Policy: Optimizing Resource Allocation. IV. The National (1 Million to 100 Million People)—Taking the Pulse of a Nation: Census, Mobile Phones, and Internet Giants. Engineering and Policy Addressing National Sentiment, Economic Deficits, and Disasters. V. Reality Mining the World's Data (100 Million 7 Billion People)—Gathering the World's Data: Global Census, International Travel and Commerce, and Planetary-Scale Communication. Engineering a Safer and Healthier Word. Conclusion. Notes. Index.

Latest Print 2015 / 208 pp. (Hardcover) / 13.9 × 21.6 cm
ISBN-978-81-203-5188-2 / ₹ 595.00

GOPALAN & SIVASELVAN

Data Mining: Techniques and Trends

N.P. GOPALAN, *Professor, Department of Computer Applications, National Institute of Technology, Tiruchirapalli.*
B. SIVASELVAN, *Assistant Professor, Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram, IIT Madras Campus, Chennai.*

In today's world of competitive business environment, there is a driving need to extract hidden and potentially meaningful information from large databases for effective decision making. This compact book explores the concept of data mining and discusses various data mining techniques and their applications. It is primarily designed for the students of Computer Science and Engineering, Information Technology, Computer Applications, and Management.

Written in a student-friendly style, the book describes the various phases of data mining, architecture of a data mining system, and the types of knowledge that can be mined from databases. It elaborates on different data preprocessing techniques such as cleaning, integration, transformation and reduction. The text then explains the various data mining techniques such as association rule mining, data classification and clustering. The book adopts an algorithm-centric approach presenting various algorithms for these data mining techniques. Finally, the text ends with an exhaustive discussion on multimedia data mining (MDM).

KEY FEATURES

- Illustrates the concepts with the help of various figures and examples.
- Provides a summary at the end of each chapter for quick revision of key points.
- Offers chapter-end questions for self-evaluation.

Contents: Preface. Introduction to Data Mining. Data Preprocessing Technique. Association Rule Mining. Data Classification Techniques. Data Clustering. Other Data Mining Techniques. Multimedia Data Mining: The Recent Trend. Index.

Latest Print 2009 / 144 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3812-8 / ₹ 125.00 / (e-book also available)

GUPTA

Introduction to Data Mining with Case Studies, 3rd ed.

G.K. GUPTA, *Adjunct Professor of Computer Science at Monash University, Clayton, Australia. Professor Gupta is a Fellow of the Association of Computing Machinery (ACM), a Fellow of the Australian Computer Society (ACS) and a Senior Member of the IEEE.*

The field of data mining provides techniques for automated discovery of valuable information from the accumulated data of computerized operations of enterprises. This book offers a clear and comprehensive introduction to both data mining theory and practice. It is written primarily as a textbook for the students of computer science, management, computer applications, and information technology.

The book ensures that the students learn the major data mining techniques even if they do not have a strong mathematical background. The techniques include data pre-processing, association rule mining, supervised classification, cluster analysis, web data mining, search

engine query mining, data warehousing and OLAP. To enhance the understanding of the concepts introduced, and to show how the techniques described in the book are used in practice, each chapter is followed by one or two case studies that have been published in scholarly journals. Most case studies deal with real business problems (for example, marketing, e-commerce, CRM). Studying the case studies provides the reader with a greater insight into the data mining techniques.

The book also provides many examples, review questions, multiple choice questions, chapter-end exercises and a good list of references and Web resources especially those which are easy to understand and useful for students. A number of class projects have also been included.

Contents: Preface. Preface to the Second Edition. Preface to the First Edition. Introduction. Data understanding and Data Preparation. Association Rules Mining. Classification. Cluster Analysis. Web Data Mining. Search Engines and Query Mining. Data Warehousing. Online Analytical Processing (OLAP). Information Privacy and Data Mining. Answers to Multiple Choice Questions. Index

Latest Print 2016 / 536 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5002-1 / ₹ 495.00 / (e-book also available)

HAND, MANNILA & SMYTH

Principles of Data Mining

DAVID HAND, *Imperial College, London.*
HEIKKI MANNILA, *Helsinki University of Technology.*
PADHRAIC SMYTH, *University of California at Irvine.*

The rapid growth and integration of databases provides scientists, engineers, and business people with a vast new resource that can be analyzed to make scientific discoveries, optimize industrial systems, and uncover financially valuable patterns. To undertake these large data mining projects, researchers and practitioners have adopted established algorithms from statistics, machine learning, neural networks, and databases and have also developed new methods targeted at large data mining problems.

Principles of Data Mining with its unique blend of inputs from information science, computer science, and statistics provides practitioners and students with an introduction to the wide range of algorithms and methodologies in this exciting area.

KEY FEATURES

- Gives an overview based on intuition, stressing on the principles underlying data mining algorithms and their application.
- Shows how algorithms are constructed to solve specific problems systematically.
- Emphasizes on how analysis fits together when applied to real-world data mining problems.

This book is a must read for one who wants to know how to store, access, model and finally describe and understand large data sets.

Contents: List of Tables. List of Figures. Series Foreword. Preface. Introduction. Measurement and Data. Visualizing and Exploring Data. Data Analysis and Uncertainty. A Systematic Overview of Data Mining Algorithms. Models and Patterns. Score Functions for Data Mining Algorithms. Search and Optimization Methods. Descriptive Modeling. Predictive Modeling for Classification. Predictive Modeling for Regression. Data Organization and Databases. Finding Patterns and Rules. Retrieval by Content. Appendix: Random Variables. References. Index.

Latest Print 2013 / 580 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2457-2 / ₹ 550.00

KARGUPTA, et al.

Data Mining: Next Generation Challenges and Future Directions

Edited by:

HILLOL KARGUPTA, ANUPAM JOSHI and YELENA YESHA *are teaching in the Department of Computer Science and Electrical Engineering at the University of Maryland Baltimore County. The first author is also affiliated with AGNIKLLC in Columbia.*
KRISHNAMOORTHY SIVAKUMAR, *Assistant Professor at the School of Electrical Engineering and Computer Science, Washington State University.*

Data Mining, or Knowledge Discovery, has become an indispensable technology for business and researchers in many fields. Drawing on work in such areas as statistics, machine learning, pattern recognition, databases, and high performance computing, data mining extracts useful information from the large data set now available to industry and science. This collection surveys the most recent advances in the field and charts directions for future research.

The first part discusses topics that include distributed data mining algorithms for new application areas, several aspects of next-generation data mining systems and applications, and detection of recurrent patterns in digital media. The second examines such topics as bio-surveillance, marshalling evidence through data mining, and link discovery. The third focuses at scientific data mining; and the topics include mining temporally-varying phenomena, data sets using graphs, and spatial data mining. The last part considers web, semantics and data mining, examining advances in text mining algorithms and software, semantic webs, and other subjects.

The book serves as a supplementary text for the students of Information Technology. It should also be of interest to the professionals of knowledge management.

Contents: Foreword. Preface. Pervasive, Distributed, and Stream Data Mining—Existential Pleasures of Distributed Data Mining. Research Issues in Mining and Monitoring of Intelligence Data. A Consensus Framework for Integrating Distributed Clusterings Under Limited Knowledge Sharing. Design of Distributed Data Mining Applications on the Knowledge Grid. Photonic Data Services: Integrating

Data, Network and Path Services to Support Next Generation Data Mining Applications. Mining Frequent Patterns in Data Streams at Multiple Time Granularities. Efficient Data-Reduction Methods for On-Line Association Rule Discovery. Discovering Recurrent Events in Multi-channel Data Streams Using Unsupervised Methods. Counterterrorism, Privacy, and Data Mining—Data Mining for Counterterrorism. Biosurveillance and Outbreak Detection. MINDS—Minnesota Intrusion Detection System. Marshalling Evidence Through Data Mining in Support of Counter Terrorism. Relational Data Mining with Inductive Logic Programming for Link Discovery. Defining Privacy for Data Mining. Scientific Data Mining—Mining Temporally-Varying Phenomena in Scientific Datasets. Methods for Mining Protein Contact Maps. Mining Scientific Data Sets using Graphs. Challenges in Environmental Data Warehousing and Mining. Trends in Spatial Data Mining. Challenges in Scientific Data Mining: Heterogeneous, Biased, and Large Samples. Web, Semantics, and Data Mining—Web Mining—Concepts, Applications, and Research Directions. Advancements in Text Mining Algorithms and Software. On Data Mining, Semantics, and Intrusion Detection: What to Dig for and Where to Find It. Usage Mining for and on the Semantic Web. Bibliography. Index.

Latest Print 2015 / 576 pp. / 13.9 × 21.6 cm
ISBN-978-81-203-2794-8 / ₹ 450.00

KULKARNI et al. (Eds.)

Big Data Analytics

PARAG KULKARNI, *Founder and CEO, iknowlation Research Labs.*
SARANG JOSHI, *Professor, Department of Computer Engineering, Pune Institute of Computer Technology, Pune.*
META S. BROWN, *President, A4A Brown Inc. (a data analytics company), USA.*

The book is an unstructured data mining quest, which takes the reader through different features of unstructured data mining while unfolding the practical facets of big data. It emphasizes more on machine learning and mining methods required for processing and decision-making**. The text begins with the introduction to the subject and explores the concept of data mining methods and models along with the applications. It then goes into detail on** other aspects of big data analytics, such as clustering, incremental learning, multi-label association and knowledge representation. The readers are also made familiar with business analytics to create value. The book finally ends with a discussion on the areas where research can be explored.

The book is designed for the senior level undergraduate, and postgraduate students of computer science and engineering.

KEY FEATURES

- Contains numerous examples and case studies.
- Discusses Apache's Hadoop—a software framework that enables distributed processing of large datasets across the clusters of computing machines.
- Incorporates review questions, MCQs, laboratory assignments and critical thinking questions at the end of the chapters, wherever required.

Contents: Preface. Introduction. Data Mining and Modelling. Big Data Mining—Application Perspective. Long Live the King of Big Data: The Context. Big Data Text Categorization and Topic Modelling. Multi-label Big Data Mining. Distributed High Dimensional Data Clustering for Big Data. Machine Learning and Incremental Learning with Big Data. Analytics in Today's Business World. Conclusion. *Annexure I: Introduction to Hadoop—A Big Data Perspective. Annexure II: Installing and Running GATE.* Index.

Latest Print 2016 / 204 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5116-5 / ₹ 250.00 / (e-book also available)

MANOHAR

Data Analysis and Business Modelling Using Microsoft Excel

HANSA LYSANDER MANOHAR, *Associate Professor, Department of Management Studies, College of Engineering, Guindy, Anna University, Chennai.*

This book is useful for the postgraduate students of business management and statistics. The objective of this book is not only to make the students to get a basic understanding of statistical techniques but also to get a thorough understanding of how to apply the techniques for practical cases which can be applied during their project work and even when the students enter the industry after finishing their courses. The text uses simple analytical techniques to solve real-time business problems. The solutions to problems contain step-by-step instructions and Excel screenshots to reinforce the understanding of the topics.

This text will help students to:

- develop the necessary skills to solve practical decision problems using Excel spreadsheets
- acquire knowledge of data analysis software for business modelling
- use analytical techniques which they had learnt to solve real-time problems.

Contents: Preface. Acknowledgements. Introduction to Data Analysis Using Excel. Random Number Generation. Rank and Percentile. Sampling: Random and Systematic. Descriptive Statistics. Inferential Statistics: Small Samples—Student's *t*-Test: Comparison of Means. Inferential Statistics: Small Samples—Paired *t*-Test: Comparison of Means. Inferential Statistics: Large Samples—*z*-Test: Comparison of Means. Inferential Statistics: Analysis of Variance (ANOVA). Inferential Statistics: Chi-Square Test. Inferential Statistics: Non-parametric Test—Mann–Whitney *U* Test. Inferential Statistics: Non-parametric Test—Kruskal–Wallis Test. Inferential Statistics: Correlation. Predictive Analytics: Linear Regression—Simple and Multiple Linear Regression. Predictive Analytics: Forecasting—Exponential Smoothing, Moving Average and Linear Trend. Portfolio

Selection. Risk Analysis and Sensitivity Analysis. Sensitivity Analysis Using What-If Analysis. Prescriptive Analytics: Optimization—Transportation Problem. Prescriptive Analytics: Optimization—Assignment Problem. Prescriptive Analytics: Optimization—Shortest Path Problem: Maximum Flow Problem. Project Management: Critical Path Method (CPM). Queuing Theory. Inventory Models: Economic Order Quantity (EOQ). Glossary. Index.

Latest Print 2017 / 376 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5288-9 / ₹ 450.00 / (e-book also available)

PRABHU

Data Warehousing: Concepts, Techniques, Products and Applications, 3rd ed.

C.S.R. PRABHU, *Director General (Retd.), National Informatics Centre (NIC), New Delhi.*

The Third Edition of this well-received text analyzes the fundamental concepts of data warehousing, data marts, and OLAP. The author discusses, in an easy-to-understand language, important topics such as data mining, how to build a data warehouse, and potential applications of data warehousing technology in government. Besides, the text compares and contrasts the currently available software tools used to design and develop data warehouses. The book is a blend of the principles and real-life case studies. While retaining the six existing case studies, it gives four new case studies:

- HARBOR, A Highly Available Data Warehouse
- A Typical Business Data Warehouse for a Trading Company
- Customer Data Warehouse for the First and Largest Online Bank in the United Kingdom
- A German Supermarket EDEKA'S Date Warehouse

The book, which is a blend of principles and real-life case studies, as a text is intended for students of B.Tech./M.Tech. (Computer Science and Engineering), B.Tech./M.Tech. (Information Technology), MBA, M.Sc. (Computer Science), M.Sc. (Information Technology), and MCA. It should also be of considerable utility and worth to software professionals and database practitioners.

Contents: Preface. Acknowledgements. Data Warehousing: An Introduction. Online Analytical Processing. Data Mining. Developing a Data Warehouse. Applications of Data Warehousing and Data Mining in Government. CASE STUDIES—1. Data Warehousing in the Tamil Nadu Government. 2. Data Warehouse for the Ministry of Commerce. 3. Data Warehouse for the Government of Andhra Pradesh. 4. Data Warehousing in Hewlett-Packard. 5. Data Warehousing in Lavis Strauss. 6. Data Warehousing in the World Bank. 7. HARBOR, A Highly Available Data Warehouse. 8. A Typical Business Data Warehouse for a Trading Company. 9. Customer Data Warehouse of the World's First and Largest Online Bank in the United Kingdom. 10. A German Supermarket EDEKA's Data Warehouse. Bibliography. Index.

Latest Print 2013 / 184 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3627-8 / ₹ 225.00 / (e-book also available)

SOMAN, DIWAKAR & AJAY

Insight into Data Mining: Theory and Practice (with CD-ROM)

K.P. SOMAN *is Head, Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore.*
SHYAM DIWAKAR, *School of Biotechnology, Amrita-vishwa Vidyapeetham (Amrita University), Kollam.*
V. AJAY *is a Research Associate at Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore.*

Data Mining is an emerging technology that has made its way into science, engineering, commerce and industry as many existing inference methods are obsolete for dealing with massive datasets that get accumulated in data warehouses.

This comprehensive and up-to-date text aims at providing the reader with sufficient information about data mining methods and algorithms so that they can make use of these methods for solving real-world problems. The authors have taken care to include most of the widely used methods in data mining with simple examples so as to make the text ideal for classroom learning. To make the theory more comprehensible to the students, many illustrations have been used, and this in turn explains how certain parameters of interest change as the algorithm proceeds.

Designed as a textbook for the undergraduate and postgraduate students of computer science, information technology, and master of computer applications, the book can also be used for MBA courses in Data Mining in Business, Business Intelligence, Marketing Research, and Health Care Management. Students of Bioinformatics will also find the text extremely useful.

DISTINGUISHING FEATURES

- Thorough exposition to classical and modern clustering algorithms with illustrative examples.
- Lucid introduction to support vector machine algorithms with step-by-step implementation details of algorithms.
- Separate chapters on practical datasets and the results of mining, and usage of softwares like WEKA, ExcelMiner and GCLUTO.
- Indepth coverage of data preprocessing with examples.
- Description of all the main classical decision-tree algorithms such as 1D3, C.4.5, CHAID and CART with examples.

CD-ROM INCLUDED: The accompanying CD contains

- Large collection of datasets.
- Animation on how to use WEKA and ExcelMiner to do data mining.

Contents: Preface. Acknowledgements. Data Mining.

Data Mining from a Business Perspective. Data Types, Input and Output of Data Mining Algorithms. Decision Trees—Classification and Regression Trees. Preprocessing and Postprocessing in Data Mining. DataSets. Association Rule Mining. Machine Learning with Open Source and Commercial Software. Algorithms for Classification and Regression. Support Vector Machines. Cluster Analysis. Visualization of Multidimensional Data. Appendices. Index.

Latest Print 2014 / 420 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2897-6 / ₹ 395.00

Database Management Systems

ASNANI

Oracle Database 12c Hands-on SQL and PL/SQL, 2nd ed.

SATISH ASNANI, *Deputy Manager, Informatics Division, Bharat Heavy Electricals Limited, Bhopal.*

The book teaches the basics of the Oracle database from a beginner's perspective to the advanced concepts using a hands-on approach. Each and every concept has been elaborated with suitable practical examples along with code for clear and precise understanding of the topic.

Using a practical approach, this new edition of the book covers the detailed introspection of pluggable databases and explains practically the various new features incorporated in the new 12c version. It also explains how to retrieve, add, update and delete data in the Oracle database using SQL, SQL*PLUS and PL/SQL. In the process, it discusses the various data types and built-in functions of Oracle, as well as the sorting of records and the table operations. The text also includes coverage of advanced queries using special operators, Oracle security, indexing, and stored functions and procedures.

The book is suitable for undergraduate engineering students of Computer Science and Information Technology, B.Sc. (Computer Science/IT), M.Sc. (Computer Science/IT) and students of Computer Applications (BCA, MCA, PGDCA, and DCA). Besides, the book can be used as a reference by professionals pursuing short-term courses on Oracle Database and students of Oracle Certified Courses.

KEY FEATURES

- **Based on latest Oracle Database 12c:** It explains the various features introduced with the new Oracle Database 12c software.
- **Hands-on methodology:** Its objective is to impart practical skills using hands-on methodology.
- **Elaborate Practical Examples:** Each topic begins with appropriate theory and concept followed by relevant examples for better understanding of the concepts.
- **Commands tested and executed on Oracle Database software:** All the programming examples have been tested on actual Oracle Database software.

Contents: Preface. Acknowledgements. Introduction to DBMS and RDBMS. Installation of Oracle 10g XE (Express Edition). Introduction to Oracle. Oracle Data Types. Oracle Operators. Integrity Constraints. Oracle Built-in Functions. Adding, Deleting and Modifying Records. Sorting. Table Operations—Altering Structure. Joins. Advanced Queries Using Special Operators. Indexing. Oracle Security—Privileges. Oracle Security—Roles. Sequences and Synonyms. Views and Materialized Views. SQL*Plus Reporting. PL/SQL. Stored Functions. Stored Procedures. Oracle Packages. Exception Handling in PL/SQL. Cursors. Database Triggers. Oracle Flashback Technology. Normalization. Entity Relationship Diagram (ERD). Oracle FAQ. Oracle 11g New Features. Index.

Latest Print 2015 / 548 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5151-6 / ₹ 425.00 / (e-book also available)

BERNARD & BACHU

Database Systems with Case Studies

MARGARET BERNARD, *Senior Lecturer in Computer Science, Department of Computing and Information Technology and Deputy Dean (Graduate Studies and Research), Faculty of Science and Technology, University of the West Indies, St. Augustine, Trinidad.*

ESHWAR BACHU, *Assistant Lecturer in Computer Science, Department of Computing and Information Technology, University of the West Indies, St. Augustine, Trinidad.*

Database Systems with Case Studies, covers exactly what students needs to know in an introductory database system course. This book focuses on database design and exposes students to a variety of approaches for getting the Data Model right. The book addresses issues related to database performance (Query Processing) and Transaction Management for multi-user environments. This book also introduces non-relational XML format to students. The approach taken to teach the topics is through introduction of many real-world enterprise database case studies and practice problems. The case studies are selected based on modern application areas, keeping the student's interest in mind. The book provides hands-on experience of database design issues with several ready-made lab exercises. For grading students' understanding of the topics, several challenging assignments are also provided at the end of chapters. Multiple-choice self-tests are provided for formative assessment throughout the book.

The book is suitable for the undergraduate students of Computer Science and Engineering, Information Technology, and students of Computer Applications (BCA/MCA).

KEY FEATURES

- All the topics are illustrated with practical examples.
- Topics like Entity-Relationship diagram (ERD), are discussed with Diagrams and Visual Aids.
- Students are exposed to the various approaches for determining data requirements.
- Structured Query Language (SQL) examples are worked with scripts, results and solutions.

- Exclusive lab exercises on SQL, can be used as assignments.

Contents: Preface. Introduction to Relational Database Systems. Structured Query Language. Database Design. Query Processing. Transaction Processing. Databases and XML. Database Cases. SQL Labs. Appendices. Index.

Latest Print 2015 / 220 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5145-5 / ₹ 395.00 / (e-book also available)

CHATTERJEE

Learning Oracle SQL and PL/SQL: A Simplified Guide

RAJEEB C. CHATTERJEE, *Visiting faculty in the Department of Information Technology, Jadavpur University.*

This book offers a systematic knowledge of the Oracle SQL and PL/SQL so that the students can exploit the capabilities of the database in an effective and efficient manner. The book follows a step-by-step approach to the subject with suitable real-world cases, examples and exercises that make it a complete and effective self-study guide

The book can also be used for practical classes on oracle. It can be used for Oracle version 8.0 onwards. The availability of an authorized oracle database in conjunction with the book is sufficient to learn Oracle commands, syntaxes, operators, built-in function, techniques for creation, alterations and uses of table structures. Screenshots have not been presented in the book to avoid confusion due to differing platforms that the students may use in different environments.

Designed to address the need of the laboratory classes on Oracle for the undergraduate and postgraduate students of Computer Science and Information Technology as well as the students of Computer Applications, this book is also useful for the professionals for conducting training program on Oracle.

Contents: Preface. Overview. Create Table Structure. Alter Table Structure. Insert a Row. Update Rows. Delete Rows. Query from Tables. Built-in Number Functions. Built-in Character Functions. Built-in Date Functions. Built-in Conversion Functions. Built-in Group Functions. Subquery. Advanced Join Methods. View. Sequence. Index. Synonym. Security. System Tables. SQL*Plus. Introduction to PL/SQL. Control Structures. Procedure. Function. Package. Trigger. Cursor. Introduction to Oracle Architecture. Answers to Revision Questions. Index.

Latest Print 2014 / 396 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4542-3 / ₹ 350.00 / (e-book also available)

DASGUPTA & RADHA KRISHNA

Database Management System, Oracle SQL and PL/SQL, 2nd ed.

PRANAB KUMAR DASGUPTA, *Senior Scientist in Defence Research and Development Organization (DRDO). Presently he is Joint Director at Proof and Experimental Establishment, Chandipur.*

P. RADHA KRISHNA, *Principal, Research Scientist at Infosys Labs, Infosys Limited, Hyderabad.*

Database Management System (DBMS) and Oracle are essentially a part of the curriculum for undergraduate and postgraduate courses in Computer Science, Computer Applications, Computer Science and Engineering, Information Technology and Management. The book is organized into the three parts to introduce the theoretical and programming concepts of DBMS. Part I: Basic Concepts and Oracle SQL, deals with DBMS basic, software analysis and design, data flow diagram, ER model, relational algebra, normal forms, SQL queries, functions, subqueries, different types of joins, DCL, DDL, DML, object constraints and security in Orcale. Part II: Application Using Oracle PL/SQL, explains PL/SQL basics, functions, procedures, packages, exception handling, triggers, implicit, explicit and advanced cursors are explained using suitable examples. This part also covers advanced concepts related to PL/SQL such as collection, records, objects, dynamic SQL and performance tuning. Part III: Advanced Concepts and Technologies, elaborates advanced database concepts such as query processing, file organization, distributed architecture, backup, recovery, data warehousing, online analytical processing and data mining concepts and their techniques.

All the chapters include a large number of examples. To further reinforce the concepts, numerous objective type questions and workouts are provided at the end of each chapter.

Contents: Preface. Acknowledgments. Database Basics, Software Analysis and Design, Data Flow Diagram and ER Model. Relational Algebra and Normal Forms. Query Processing, File Organization, Distributed Processing and Data Mining. Transaction Processing, Concurrency Control, Oracle Architecture, Backup and Recovery. SQL Basics, Functions, Sub Query and Joins. Data Manipulation Language, Objects, Constraints and Security in Oracle. Oracle PL/SQL Basics. Function, Procedure and Package. Oracle Exception Handler, Database Triggers and Implicit Cursor. Explicit and Advance Cursors. Answers. Index.

Latest Print 2013 / 344 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4842-4 / ₹ 525.00 / (e-book also available)

DASGUPTA & GHOSH

Oracle Developer 2000: Basics to Implementation (with CD-ROM)

PRANAB KUMAR DASGUPTA, *Senior Scientist in Defence Research and Development Organisation (DRDO). Presently he is Joint Director (Computer Wing) at Proof & Experimental Establishment, Chandipur, Balasore, Orissa.*

PRANAB GHOSH, *Scientist in Defence Research and Development Organization (DRDO). Presently he is Assistant Director (Computer Wing) at Proof and Experimental Establishment, Chandipur.*

The objective of this book is to cater to the needs of the students and professionals aspiring to become Oracle software developers. It covers the basics of Oracle Developer 2000, and exposes the readers to its important features and tools for application development. The concepts are explained with the help of numerous illustrations. Workout sections and case studies are designed to provide a real-life experience of development of application software.

The book is most suitable for beginners, including the students pursuing courses in engineering disciplines (B.Tech./M.Tech.) and computer applications (MCA/BCA) and research students who wish to learn and master Oracle Developer 2000 for writing project reports and dissertations. Professionals, too, can learn and explore Oracle Developer, using this book as a guide.

KEY FEATURES

- More than 75 Examples
- Mini Case Studies in Workout Sections
- A Real Life Case Study

You will learn how to create:

- Form Components
- List of Values, Editor and Visual Attribute
- Input and Non-Input Items
- Message, Alerts, Menu and Function Key
- Mouse Events and Timer
- Item Interaction, Query and Validation Triggers
- Navigation and Transaction Triggers
- Window Interaction Trigger
- Parameter and Multiple Forms
- Report Builder Components
- Tabular, Form, and Group Type Reports
- Matrix Type Report
- Customization of a Report
- Calling Report from a Form

CD-ROM Features:

- Contains programs of Examples, Workouts and Case Studies
- Programs are compatible with Oracle 8i, 9i and 10g

Contents: Preface. Acknowledgements. Basics of Forms Builder. Form Components. List of Values, Editor, Visual Attribute, Input and Non-input Items. Trigger, Message and Alert. Advanced Triggers. Menu, Function Key, Mouse and Timer. Windows and Multiple Forms. Basics of Report Builder. Using Report Wizard. Manual Development of Reports. Case Study: Digital Message Board—An Introduction. Case Study: Digital Message Board—Software Development. Appendices—A: *Installation of Oracle Database and Developer 2000* (*Forms and Reports*). B: Tables Used in the Book. C: Trigger Category. Index.

Latest Print 2008 / 600 pp. / 17.8 × 23.5 cm

ISBN-978-81-203-3510-3 / ₹ 425.00 / (e-book also available)

GHOSH

SQL Popcorn

PRANAB GHOSH, *Scientist in Defence Research and Development Organization (DRDO). Presently, he is Assistant Director (Computer Wing) at Proof and Experimental Establishment (PXE), Chandipur.*

SQL (Structured Query Language) is a widely used database computer language designed for data retrieval and administration, report generation, database object creation and manipulation, and database access control management. Whether it is Oracle, Sybase, MS Access or DB2, this database language is used in all relational database management systems. This book presents the basics of SQL and teaches how to use it to create, modify and maintain a database in practical situations.

The book first exposes the readers to important features, functions and commands of SQL and then focuses on solving SQL queries in a step-by-step manner. It provides a number of SQL query examples and encourages the readers to try out various SQL queries to understand the underlying concepts. The book discusses the different real-life SQL queries related to a banking transaction system, publication management system, transport management system, employee information system, sales tracking system, teaching activity system, patient diagnostics system, and an automobile sales monitoring system, in order to acquaint the readers with more and more complex aspects of SQL.

KEY FEATURES

- More than 150 well-balanced solved problems to help students learn query-solving techniques.
- A number of real-life examples to show relevant application of the procedures discussed.
- Self-test exercises including objective type questions at the end of each chapter for reinforce-ment of concepts through practice.

The book is useful for the students of BSc/MSc (Computer Science), BCA/MCA, BBA/MBA and BE/BTech (Computer Science and Engineering, and Information Technology) for their courses in database management systems.

Contents: Preface. Acknowledgements. SQL—Brief Overview. Banking Transaction Information System. Publication Management System. Training Management System. Transport Management System. Employee Information System. Sales Tracking System. Teaching Activity Information System. Patient Diagnostics

Information System. Automobile Sales Monitoring System. Appendix 'A': Script of Tables Used. Appendix 'B': Frequently Used SQL Commands. Answers. Index.

Latest Print 2009 / 228 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3922-4 / ₹ 195.00 / (e-book also available)

NARANG

Database Management Systems, 2nd ed.

RAJESH NARANG, *Chief Technology Officer, National Institute of Smart Government, New Delhi.*

The contents of this **second edition** have been appropriately enhanced to serve the growing needs of the students pursuing undergraduate engineering courses in Computer Science, Information Technology, as well as postgraduate programmes in Computer Applications (MCA), MSc (IT) and MSc (Computer Science). The book covers the fundamental and theoretical concepts in an elaborate manner using SQL of leading RDBMS—Oracle, MS SQL Server and Sybase.

Realizing the importance of RDBMS in all types of architectures and applications, both traditional and modern topics are included for the benefit of IT-savvy readers. A strong understanding of the relational database design is provided in chapters on Entity-Relationship, Relational, Hierarchical and Network Data Models, Normalization, Relational Algebra and Relational Calculus. The architecture of the legacy relational database R system, the hierarchical database IMS of IBM and the network data model DBTG are also given due importance to bring completeness and to show thematic interrelationships among them.

Several chapters have been devoted to the latest database features and technologies such as Data Partitioning, Data Mirroring, Replication, High Availability, Security and Auditing. The architecture of Oracle, SQL of Oracle known as PL/SQL, SQL of both Sybase and MS SQL Server known as T-SQL have been covered.

Contents: Preface. Introduction. The Entity-Relationship Model. Data Models. Storage Structure. Relational Data Structure. Architecture of System R and Oracle. Normalization. Structured Query Language. T-SQL—Triggers and Dynamic Execution. Procedure Language—SQL. Cursor Management and Advanced PL/SQL. Relational Algebra and Relational Calculus. Concurrency Control and Automatic Recovery. Distributed Database and Replication. High Availability and RAID Technology. Security Features Built in RDBMS. Queries Optimization. Architecture of a Hierarchical DBMS. The Architecture of Network based DBTG System. Comparison between Different Data Models. Performance Improvement and Partitioning. Database Mirroring and Log Shipping for Disaster Recovery. Bibliography. Answers to Selected Exercises. Index.

Latest Print 2012 / 480 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4313-9 / ₹ 325.00 / (e-book also available)

PAKHIRA

Database Management System

MALAY K. PAKHIRA, *Associate Professor in the Department of Computer Science and Engineering at Kalyani Government Engineering College, West Bengal.*

This compact text on Database Management System is a perfect blend of theoretical and practical aspects. From basics to applications, it provides a thorough and up-to-date treatment of the subject. The book, in the beginning, builds a strong foundation of relational database management system and then deals with query language, data manipulation, transaction processing, data warehouse, data mining, and application programming. The text is supported by clear illustrations, sufficient figures and tables, and necessary theoretical details to understand the topics with clarity. Besides, numerous solved examples and chapter-end exercises will help students reinforce their problem-solving skills. The book adopts a methodological approach to problem solving.

Primarily intended for both degree and diploma students of Computer Science and Engineering, the book will also be of benefit to the students of computer applications and management.

Contents: Preface. Database Systems. Modelling a Database. Modelling with E-R Diagram. Principles of Relational Database Management Systems. Relational Database Design. Structured Query Language. Information Retrieval and Data Manipulation. Programming with PL/SQL. Query Processing and Optimization. Concurrent Transaction Processing. Database Recovery. File Organization, Indexing and Hashing. Data Warehousing and Data Mining. Index.

Latest Print 2012 / 268 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4674-1 / ₹ 250.00 / (e-book also available)

PANNEERSELVAM

Database Management Systems, 2nd ed.

R. PANNEERSELVAM, *Professor, Department of Management Studies, School of Management, Pondicherry University, Puducherry.*

This revised and updated book, now in its Second Edition, continues to provide excellent coverage of the basic concepts involved in database management systems. It provides a thorough treatment of some important topics such as data structure, data models and database design through presentation of well-defined algorithms, examples and real-life cases. There is also detailed coverage of data definition and data manipulation parts of IMS and PC-FOCUS—the two popular database management systems—to access and manipulate hierarchical database, besides IDMS (Network) and Interactive SQL (Relational) database languages, using suitable programs based on case studies.

WHAT IS NEW TO THIS EDITION

- Includes **five** new chapters, namely, Distributed Database Management System, Client/Server Systems, Data Warehousing, Data Mining, and Object Oriented Database Management System (OODBMS) to cover the modern concepts of DBMS.
- Provides a new section on cryptography for network security.

The textbook is primarily designed for the postgraduate students of management, computer science and information technology. It should also serve as a useful text for B.E./B.Tech. students in computer science engineering and software engineering. Besides students, this book will also be useful for computer professionals engaged in design, operation and maintenance of database.

Contents: Preface. Preface to the First Edition. Introduction. Database Concepts. Data Structure. Data Models. Database Design. Implementation Design. Hierarchical Database Management Systems. Network Database Management Systems. Relational Database Management Systems. Distributed Database Management System. Client/Server Systems. Data Warehousing. Data Mining. Object Oriented Database Management System (OODBMS). Database Operations and Maintenance. Appendices. Bibliography. Index.

Latest Print 2015 / 404 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4277-4 / ₹ 350.00 / (e-book also available)

Digital Image Processing

CHANDA & MAJUMDER

Digital Image Processing and Analysis, 2nd ed.

BHABATOSH CHANDA, *Professor, Electronics and Communication Sciences Unit, Indian Statistical Institute, Kolkata.*

DWIJESH DUTTA MAJUMDER, *Professor Emeritus, Electronics and Communication Sciences Unit, Indian Statistical Institute, Kolkata.*

The second edition of this extensively revised and updated text is a result of the positive feedback and constructive suggestions received from academics and students alike. It discusses the fundamentals as well as the advances in digital image processing and analysis—both theory and practice—to fulfil the needs of students pursuing courses in Computer Science and Engineering (CSE) and Electronics and Communication Engineering (ECE), both at undergraduate and postgraduate levels. It is also considered useful for teachers, professional engineers and researchers.

The second edition has three objectives. First, each and every chapter has been modified in the light of recent advances as well as emerging concepts. Second, a good deal of colour image processing has been incorporated. A large number of line drawings and images have been included to make the book student friendly. Third, some new problems have been added in almost all chapters to test the student's understanding of the real-life problems.

The other distinguishing features of the book are:

- A summary at the end of the chapter to help the student capture the key points.
- About 320 line drawings and 280 photographs for easy assimilation of the concepts.
- Chapter-end problems for extensive practice and research.

Contents: Preface. Acknowledgements. Part I: Digital Image—Introduction. Mathematical Preliminaries. Visual Preliminaries. Image Formation. Digitization. Part II: Image Processing—Image Enhancement. Restoration. Image Compression. Registration. Multi-valued Image Processing. Part III: Image Analysis—Segmentation. Edge and Line Detection. Feature Extraction. Description. Recognition. Index.

Latest Print 2011 / 488 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4325-2 / ₹ 325.00 / (e-book also available)

JOSHI

Digital Image Processing: An Algorithmic Approach, 2nd ed.

MADHURI A. JOSHI, *Professor of Electronics and Telecommunication Engineering at College of Engineering Pune (COEP), Pune.*

This introduction to the fundamental concepts and methodologies of image processing is suitable for first-year postgraduate and senior undergraduate students in almost every engineering discipline, and in particular meets the requirement of the prescribed courses in the streams: Electronics and Communication, Computer Science and Engineering, Information Technology, and Computer Applications.

The book, now in its second edition, continues to offer a balanced exposition of the basic principles and applications of image processing. It lays considerable emphasis on the algorithmic approach in order to teach students how to write good practical programs for problem solving.

Major topics covered in the book include Image fundamentals, Different image transforms, Image enhancement in the spatial and frequency domains, Restoration, Image analysis, Image description, Image compression, Image reconstruction from projections, and Applications of image processing in the areas of biometrics, speaker recognition, satellite imaging, medical imaging, and many more.

The style of presentation is comprehensive and application oriented, comprising examples, diagrams, image results, case studies of applications, and review questions—making it easy for students to understand key ideas, their practical relevance and applications.

NEW TO THIS EDITION

- Object representation, recognition and classification

- MATLAB programs
- Optimization of Image processing and OpenCV programs

Contents: Preface. Preface to the First Edition. Digital Image Processing. Different Image Transforms. Image Enhancement. Restoration. Image Analysis. Applications of Image Processing. Image Coding and Image Compression. Computer Tomography. C Programs. Object Representation, Recognition and Classification. Appendix—A: Algorithm for Hadamard Transforms. B: Examples of Watermarking Using a Block Transform. C: MATLAB Programs for Image Processing. D: OpenCV Programs for Image Processing. Bibliography. Index.

480 pp. (approx.) / 17.8 × 23.5 cm
ISBN-978-81-203-5302-2 / FORTHCOMING

NAVAS & JAYADEVAN

Lab Primer through MATLAB®: Digital Signal Processing, Digital Image Processing, Digital Signal Processor and Digital Communication

K.A. NAVAS, *Principal, LBS College of Engineering, Kerala.*
R. JAYADEVAN, *Assistant Professor, Department of Electronics and Communication Engineering, Sreepathy Institute of Management and Technology, Kerala.*

This systematically designed laboratory manual elucidates a number of techniques which help the students carry out various experiments in the field of digital signal processing, digital image processing, digital signal processor and digital communication through MATLAB® in a single volume. A step-wise discussion of the programming procedure using MATLAB® has been carried out in this book. The numerous programming examples for each digital signal processing lab, image processing lab, signal processor lab and digital communication lab have also been included.

The book begins with an introductory chapter on MATLAB®, which will be very useful for a beginner. The concepts are explained with the aid of screenshots. Then it moves on to discuss the fundamental aspects in digital signal processing through MATLAB®, with a special emphasis given to the design of digital filters (FIR and IIR). Finally digital communication and image processing sections in the book help readers to understand the commonly used MATLAB® functions. At the end of this book, some basic experiments using DSP trainer kit have also been included.

This book is intended for the undergraduate students of electronics and communication engineering, electronics and instrumentation engineering, and instrumentation and control engineering for their laboratory courses in digital signal processing, image processing and digital communication.

KEY FEATURES

- Includes about 115 different experiments.
- Contains several figures to reinforce the understanding of the techniques discussed.
- Gives systematic way of doing experiments such as Aim, Theory, Programs, Sample inputs and outputs, Viva voce questions and Examination questions.

Contents: Preface. Familiarization of MATLAB®. Digital Signal Processing Lab. Image Processing Lab. Digital Signal Processor Lab. Digital Communication Lab. Index.

Latest Print 2014 / 356 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4932-2 / ₹ 350.00 / (e-book also available)

PAKHIRA

Digital Image Processing and Pattern Recognition

MALAY K. PAKHIRA, *Associate Professor in the Department of Computer Science and Engineering, Kalyani Government Engineering College, Kalyani, West Bengal.*

This book is designed for undergraduate and post-graduate students of Computer Science and Engineering, Information Technology, Electronics and Communication Engineering, and Electrical Engineering.

The book comprehensively covers all the important topics in digital image processing and pattern recognition along with the fundamental concepts, mathematical preliminaries and theoretical derivations of significant theorems. The image processing topics include coverage of image formation, digitization, lower level processing, image analysis, image compression, and so on. The topics on pattern recognition include statistical decision making, decision tree learning, artificial neural networks, clustering and others. An application of simulated annealing for edge detection is described in an appendix. The book is profusely illustrated with more than 200 figures and sketches as an added feature.

KEY FEATURES

- Provides a large number of worked examples to strengthen the grasp of the concepts.
- Lays considerable emphasis on the algorithms in order to teach students how to write good practical programs for problem solving.
- Devotes a separate chapter to currently used image format standards.
- Offers problems at the end of each chapter to help students test their understanding of the fundamentals of the subject.

Contents: Preface. Introduction. Image Acquisition. Sampling and Digitization. Fundamentals of Digital Images. Image Transforms. Image Enhancement. Colour Image Processing. Image Restoration. Image Registration. Edge Detection. Image Segmentation. Image Compression. Image File Formats. Feature Extraction and Representation. Pattern Recognition. Classification and Decision Making. Statistical Decision Making. Nearest Neighbour Classifier. Decision Tree Learning. Recognition and Artificial Neural Networks. Clustering. Appendix: Edge Detection using Simulated Annealing. Index.

Latest Print 2013 / 528 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4091-6 / ₹ 425.00 / (e-book also available)

SINHA & PATEL

Medical Image Processing: Concepts and Applications

G.R. SINHA, *Professor in Electronics and Telecommunication and Associate Director, Faculty of Engineering and Technology, Shri Shankaracharya Group of Institutions, Shri Shankaracharya Technical Campus, Bhilai, Chhattisgarh. He is Dean of Faculty and Executive Council Member, Swami Vivekanand Technical University, Bhilai, Chhattisgarh.*

BHAGWATI CHARAN PATEL, *Associate Professor in Information Technology, Faculty of Engineering and Technology, Shri Shankaracharya Group of Institutions, Shri Shankaracharya Technical Campus, Bhilai, Chhattisgarh.*

Medical Image Processing: Concepts and Applications presents an overview of image processing for various applications in the field of medical science. Inclusion of several topics like noise reduction filters, feature extraction, image restoration, segmentation, soft computing techniques and context-based medical image retrieval, etc. makes this book a single-source information meeting the requirements of the readers. Besides, the coverage of digital image processing, human visual perception and CAD system to be used in automated diagnosis system, medical imaging modalities, various application areas of medical field, detection and classification of various disease, etc. is highly emphasised in the book.

The book, divided into eight chapters, presents the topics in a clear, simple, practical and cogent fashion that provides the students with the insight into theory as well as applications to the practical problems. The research orientation of the book greatly supports the concepts of image processing to be applied for segmentation, classification and detection of affected areas in X-ray, MRI and mammographic and all other medical images. Throughout the book, an attempt has been made to address the challenges faced by radiologists, physicians and doctors in scanning, interpretation and diagnosis process. The book uses an abundance of colour images to impart a high level of comprehension of concepts and helps in mastering the process of medical image processing. Special attention is made on the review of algorithms or methods of medical image formation, processing and analysis, medical imaging applications, and emerging medical imaging modality.

This is purely a text dedicated for the undergraduate and postgraduate students of biomedical engineering. The book is also of immense use to the students of computer science engineering and IT who offer a course on digital image processing.

KEY POINTS

- Chapter-end review questions test the students' knowledge of the fundamental concepts.
- Course outcomes help the students in capturing the key points.
- Several images and information regarding morphological operations given in appendices help in getting additional knowledge in the field of medical image processing.

Contents: Preface. Acknowledgements. Introduction. Biomedical Image Processing. Noise Reduction Filters for Medical Images. Feature Extraction and Statistical Measurement. Medical Image Restoration. Biomedical Image Segmentation. Soft Computing Techniques. Content-Based Medical Image Retrieval. Appendix A: SSGI Databases. Appendix B: Morphological Operations Used in Medical Image Processing. Bibliography. Index.

Latest Print 2014 / 268 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4902-5 / ₹ 495.00 / (e-book also available)

SOMAN, et al.

Insight into Wavelets: From Theory to Practice, 3rd ed. (with CD-ROM)

K.P. SOMAN, *Head, Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore.*

K.I. RAMACHANDRAN, *Professor, Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore.*

N.G. RESMI, *Research Associate in Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore.*

This book in its third edition additionally explores how the ubiquitous electronic spreadsheet can be utilized for wavelet based signal and image processing. Many of the intriguing properties of wavelet and scaling functions can be easily observed in the spreadsheets.

New to this Edition

- Inclusion of a separate and elaborate chapter on Multiwavelet theory.
- Theory of parametric wavelet filters design appended in respective chapters.
- Parametric and non-parametric biorthogonal wavelet design explained in more detail.
- Chapter on M-band wavelet included with simplified design procedures.

The accompanying CD contains worksheets that demonstrate the power of spreadsheet packages as a computational and visualization tool.

KEY FEATURES

- Describes wavelet concepts from both the signal expansion and filter theory points of view
- Gives clear and concise explanation of biorthogonality and biorthogonal wavelet analysis
- Deals with design of wavelets in both time and frequency domain
- Explains lifting-scheme based wavelet analysis and design in detail
- Covers wavelet applications in computer graphics, signal denoising and compression
- Includes latest developments in Groebner basis method of wavelet design, Multiwavelet theory and curvelet transforms

Intended to cater to the postgraduate students of

computer science, electrical/electronic and communication engineering, the textbook will also meet the needs of undergraduate and postgraduate students of mathematics and physics.

Contents: Preface. Preface to the First Edition. Acknowledgements. The Age of Wavelets. Fourier Series and Geometry. Continuous Wavelet and Short Time Fourier Transform. Discrete Wavelet Transform. Designing Orthogonal Wavelet Systems: A Direct Approach. Discrete Wavelet Transform and Relation to Filter Banks. Computing and Plotting Scaling and Wavelet Functions. Biorthogonal Wavelets. Designing Wavelets: Frequency Domain Approach. Groebner Basis for Wavelet Design. Wavelet Packet Analysis. M-Band Wavelets. Introduction to Multiwavelets. Lifting Scheme. Image Compression. Denoising. Beyond Wavelets: The Ridgelets and Curvelets. Spline Wavelets: Introduction and Applications to Computer Graphics. Appendix. Index.

Latest Print 2013 / 464 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4053-4 / ₹ 425.00 / (e-book also available)

Digital Logic

ALAM & ALAM

Digital Logic Design

MANSAF ALAM, *Assistant Professor, Department of Computer Science, Faculty of Natural Sciences, Jamia Millia Islamia, New Delhi and Editor-in-Chief, Journal of Applied Information Science.*

BASHIR ALAM, *Assistant Professor, Department of Computer Engineering, Faculty of Engineering and Technology, Jamia Millia Islamia, New Delhi.*

This textbook covers latest topics in the field of digital logic design along with tools to design the digital logic circuits. It is designed for the undergraduate students pursuing courses in areas of engineering disciplines such as Electrical and Electronics, Electronics and Communication, Electronics and Instrumentation, Telecommunications, and Computer Science and Engineering. It is also useful as a text for MCA, M.Sc. (Electronics) and M.Sc. (Computer Science) students.

The contents of this book have been organized in a systematic manner so as to inculcate sound knowledge and concepts amongst its readers. It covers basic concepts in combinational and sequential circuit design such as digital electronics, digital signal processing, number system, data and information representation and, computer arithmetic. Besides this, advanced topics in digital logic design such as various types of counter design; register design, ALU design, threshold circuit and, digital computer design are also discussed in the book.

KEY FEATURES

- Question Bank containing numerous multiple choice questions with their answers
- Short answer questions, long answer questions and multiple choice questions at the end of each chapter
- Extensive use of graphs and diagrams for better understanding of the subject

Contents: Preface. Introduction. Number System. Data and Information Representation. Computer Arithematic. Fundamentals of Boolean Logic and Gates. Simplification of Boolean Function. Combinational Circuit Design. Sequential Circuit Design. Counter Design. Register Design. Threshold Circuit and Digital Computer Design. Index.

Latest Print 2015 / 296 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5108-0 / ₹ 295.00 / (e-book also available)

ANAND KUMAR

Switching Theory and Logic Design, 3rd ed.

A. ANAND KUMAR, *Principal, K.L. University College of Engineering, K.L. University, Vijayawada, Andhra Pradesh.*

This comprehensive text on switching theory and logic design is designed for the undergraduate students of electronics and communication engineering, electrical and electronics engineering, electronics and computers engineering, electronics and instrumentation engineering, telecommunication engineering, computer science and engineering, and information technology. It will also be useful to M.Sc (electronics), M.Sc (computers), AMIE, IETE and diploma students.

Written in a student-friendly style, this book, now in its Third Edition, provides an in-depth knowledge of switching theory and the design techniques of digital circuits. Striking a balance between theory and practice, it covers topics ranging from number systems, binary codes, logic gates and Boolean algebra to minimization using K-maps and tabular method, design of combinational logic circuits, synchronous and asynchronous sequential circuits, and algorithmic state machines. The book discusses threshold gates and programmable logic devices (PLDs). In addition, it elaborates on flip-flops and shift registers.

Each chapter includes several fully worked-out examples so that the students get a thorough grounding in related design concepts.

Short questions with answers, review questions, fill in the blanks, multiple choice questions and problems are provided at the end of each chapter. These help the students test their level of understanding of the subject and prepare for examinations confidently.

NEW TO THIS EDITION

- VERILOG programs at the end of each chapter

Contents: Preface. Symbols, Notations and Abbreviations. Introduction. Number Systems and Codes. Boolean Algebra and Switching Functions. Minimization of Switching Functions. Combinational Logic Design. Programmable Logic Devices and Threshold Logic. Sequential Circuits–I. Sequential Circuits–II. Algorithmic State Machines. Appendix. Glossary. Answers. Index.

Latest Print 2016 / 940 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5267-4 / ₹ 550.00 / (e-book also available)

ANANDA NATARAJAN

Digital Design

R. ANANDA NATARAJAN, *Professor, Department of Electronics and Instrumentation Engineering, Pondicherry Engineering College, Puducherry.*

Primarily intended for undergraduate engineering students of Electronics and Communication, Electronics and Electrical, Electronics and Instrumentation, Computer Science and Information Technology, this book will also be useful for the students of BCA, B.Sc. (Electronics and CS), M.Sc. (Electronics and CS) and MCA.

Digital Design is a student-friendly textbook for learning digital electronic fundamentals and digital circuit design. It is suitable for both traditional design of digital circuits and HDL based digital design. This well organised text gives a comprehensive view of Boolean logic, logic gates and combinational circuits, synchronous and asynchronous circuits, memory devices, semiconductor devices and PLDs, and HDL, VHDL and Verilog programming. Numerous solved examples are given right after conceptual discussion to provide better comprehension of the subject matter. VHDL programs along with simulation results are given for better understanding of VHDL programming.

KEY FEATURES

- Well labelled illustrations provide practical understanding of the concepts.
- GATE level MCQs with answers (along with detailed explanation wherever required) at the end of each chapter help students to prepare for competitive examinations.
- Short questions with answers and appropriate number of review questions at the end of each chapter are useful for the students to prepare for university exams and competitive exams.
- Separate chapters on VHDL and Verilog programming along with simulated results are included to enhance the programming skills of HDL.

Contents: Preface. Acknowledgements. Number Systems. Boolean Algebra. Arithmetic Circuits. Combinational Circuits. Flip Flops. Registers. Counters. Synchronous Sequential Circuits. Asynchronous Sequential Circuits. Memory Devices. Logic Families of Digital Integrated Circuits. Algorithmic State Machine. Hardware Description Language—The VHDL. Hardware Description Language—The Verilog. Index.

Latest Print 2015 / 780 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4977-3 / ₹ 595.00 / (e-book also available)

RAJARAMAN & RADHAKRISHNAN

Digital Logic and Computer Organization

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

T. RADHAKRISHNAN, *Professor of Computer Science and Software Engineering, Faculty of Engineering at Concordia University, Montreal, Canada.*

This introductory text on 'digital logic and computer organization' presents a logical treatment of all the fundamental concepts necessary to understand the organization and design of a computer. It is designed to cover the requirements of a first-course in computer organization for undergraduate Computer Science, Electronics, or MCA students. Beginning from first principles, the text guides students through to a stage where they are able to design and build a small computer with available IC chips.

Starting with the foundation material on data representation, computer arithmetic and combinatorial and sequential circuit design, the text explains ALU design and includes a discussion on an ALU IC chip. It also discusses Algorithmic State Machine and its representation using a Hardware Description Language before shifting to computer organization.

The evolutionary development of a small hypothetical computer is described illustrating hardware-software trade-off in computer organization. Its instruction set is designed giving reasons why each new instruction is introduced. This is followed by a description of the general features of a CPU, organization of main memory and I/O systems. The book concludes with a chapter describing the features of a real computer, namely the Intel Pentium. An appendix describes a number of laboratory experiments which can be put together by students, culminating in the design of a toy computer.

KEY FEATURES

- Self-contained presentation of digital logic and computer organization with minimal pre-requisites
- Large number of examples provided throughout the book
- Each chapter begins with learning goals and ends with a summary to aid self-study by students.

Contents: Preface. Data Representation. Boolean Algebra and Logic Gates. Combinatorial Switching Circuits. Sequential Switching Circuits. Arithmetic and Logic Unit. Application of Sequential Circuits. Computer Systems—Multiple Views. Basic Computer Organization. Central Processing Unit. Memory Organization. Input-output Devices. Input-Output Organization. Case Study of a Real Computer System. **Appendix**—A. Suggested Hardware Lab Experiments. B. Decision Table Terminology. References. Index.

Latest Print 2016 / 528 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2979-9 / ₹ 425.00 / (e-book also available)

Discrete Mathematics and Graph Theory

BATHUL

Mathematical Foundation of Computer Science, 2nd ed.

SHAHNAZ BATHUL, *former Professor, Department of Mathematics, JNTUH College of Engineering, Kukatpally, Hyderabad.*

This book, in its Second Edition, provides the basic concepts and applications of discrete mathematics and graph theory. The book is aimed at undergraduate students of Computer Science and Engineering, and Information Technology. It is also suitable for undergraduate and postgraduate students of Computer Science, Mathematics and Computer Applications.

The book exposes the students to fundamental knowledge in:

- Mathematical logic, tautology and normal forms
- Elementary set theory, functions and their relations
- Algebraic structure, binary operation, group theory and homomorphism
- Theory of permutations and combinations, binomial and multinomial theorems
- Recurrence relations and methods of solving them
- Graph theory, spanning tree, Eulerian and Hamiltonian circuits and isomorphism

KEY FEATURES

- Includes a large number of worked-out problems for sound understanding of the concepts.
- Offers chapter-end exercises to test students' comprehension of theory.
- Gives a quiz section at the end of each chapter to help students prepare for the competitive examinations.
- Incorporates Short questions asked in Universities' examinations.

Contents: Preface. Mathematical Logic. Calculus of Predicates. Combinatorics. Recurrence Relations. Graph Theory. Index.

Latest Print 2015 / 480 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5129-5 / ₹ 495.00 / (e-book also available)

BISWAL

Discrete Mathematics and Graph Theory, 4th ed.

PURNA CHANDRA BISWAL, *Assistant Professor of Mathematics at Parala Maharaja Engineering College, Berhampur, Odisha.*

This textbook, now in its fourth edition, continues to provide an accessible introduction to discrete mathematics and graph theory.

The introductory material on Mathematical Logic is followed by extensive coverage of combinatorics, recurrence relation, binary relations, coding theory, distributive lattice, bipartite graphs, trees, algebra, and Polya's counting principle. A number of selected results and methods of discrete mathematics are discussed in a logically coherent fashion from the areas of mathematical logic, set theory, combinatorics, binary relation and function, Boolean lattice, planarity, and group theory. There is an abundance of examples, illustrations and exercises spread throughout the book. A good number of problems in the exercises help students test their knowledge.

The text is intended for the undergraduate students of Computer Science and Engineering as well as to the students of Mathematics and those pursuing courses in the areas of Computer Applications and Information Technology.

NEW TO THE FOURTH EDITION

- Introduces new section on Arithmetic Function in Chapter 9.
- Elaborates enumeration of spanning trees of wheel graph, fan graph and ladder graph.
- Redistributes most of the problems given in exercises section-wise.
- Provides many additional definitions, theorems, examples and exercises.
- Gives elaborate hints for solving exercise problems.

Contents: Preface. Preface to the First Edition. List of Symbols. Mathematical Logic. Methods of Proof. Combinatorics. Recurrence Relation. Binary Relation and Function. Graph Theory. Algebraic System and Lattice. System with One Binary Operation. Finitely Generated Group. Homomorphism. Counting Principle. Permutation Group. Sylow's Theorem. System with Two Binary Operations. Coding Theory. Bibliography. Index.

Latest Print 2015 / 748 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5061-8 / ₹ 595.00 / (e-book also available)

CHANDRASEKARAN & UMAPARVATHI

Discrete Mathematics, 2nd ed.

N. CHANDRASEKARAN, *has been Professor of Mathematics at St. Joseph's College, Tiruchirapalli.*
M. UMAPARVATHI, *has been Professor of Mathematics at Seethalakshmi Ramaswami College, Tiruchirapalli.*

Written with a strong pedagogical focus, this second edition of the book continues to provide an exhaustive presentation of the fundamental concepts of discrete mathematical structures and their applications in computer science and mathematics. It aims to develop the ability of the students to apply mathematical thought in order to solve computation-related problems. The book is intended not only for the undergraduate and postgraduate students of mathematics but also, most importantly, for the students of Computer Science and Engineering and Computer Applications.

The introductory chapter presents an overview of the foundations of the subject, consisting of topics such as logic, set theory, relations, functions, algebraic structures, and graphs. The subsequent chapters provide detailed coverage of each of these topics as well as major areas of discrete mathematics such as combinatorics, lattices and Boolean algebras. Major applications such as computer models and computation, coding theory, cryptography and databases are dealt with in the final chapters of the book. In addition to this, a new chapter on matrices is included in this edition of the book, which forms a part of MCA course curriculum.

The book is replete with features which enable the building

of a firm foundation of the underlying principles of the subject and also provide adequate scope for testing the comprehension acquired by the students. Each chapter contains numerous worked-out examples within the main discussion as well as several chapter-end Supplementary Examples for revision. The Self-Test and Exercises at the end of each chapter provide large numbers of objective type questions and problems respectively. Answers to objective type questions and hints to exercises are also provided. All these pedagogic features, together with thorough coverage of the subject matter, make this book a readable text for beginners as well as advanced learners of the subject.

Contents: Preface. Preface to the First Edition. Foundations. Predicate Calculus. Combinatorics. More on Sets. Relations and Functions. Recurrence Relations. Algebraic Structures. Lattices. Boolean Algebras. Graphs. Trees. Models of Computers and Computation. Additional Topics. Matrices. Further Readings. Index.

Latest Print 2015 / 880 pp. / 17.8 x 23.5 cm
ISBN-978-81-203-5097-7 / ₹ 525.00 / (e-book also available)

CHOWDHARY

Fundamentals of Discrete Mathematical Structures, 3rd ed.

K.R. CHOWDHARY, *Director, Jodhpur Institute of Engineering and Technology, School of Engineering & Technology for Girls (JIET-SETG), is visiting Professor at Indian Institute of Technology Jodhpur since 2010.*

This updated text, now in its Third Edition, continues to provide the basic concepts of discrete mathematics and its applications at an appropriate level of rigour.

The text teaches mathematical logic, discusses how to work with discrete structures, analyzes combinatorial approach to problem-solving and develops an ability to create and understand mathematical models and algorithms essentials for writing computer programs. Every concept introduced in the text is first explained from the point of view of mathematics, followed by its relation to Computer Science. In addition, it offers excellent coverage of graph theory, mathematical reasoning, foundational material on set theory, relations and their computer representation, supported by a number of worked-out examples and exercises to reinforce the students' skill.

Primarily intended for undergraduate students of Computer Science and Engineering, and Information Technology, this text will also be useful for under-graduate and postgraduate students of Computer Applications.

NEW TO THIS EDITION

Incorporates many new sections and subsections such as recurrence relations with constant coefficients, linear recurrence relations with and without constant coefficients, rules for counting and shorting, Peano axioms, graph connecting, graph scanning algorithm, lexicographic shorting, chains, antichains and order-isomorphism, complemented lattices, isomorphic order sets, cyclic groups, automorphism groups, Abelian groups, group homomorphism, subgroups, permutation groups, cosets, and quotient subgroups.

Includes many new worked-out examples, definitions, theorems, exercises, and GATE level MCQs with answers.

Contents: Preface. Preface to the First Edition. Discrete Structures and Set Theory. Induction, Recursion and Recurrences. Combinatorics. Discrete Probability. Mathematical Logic. Logical Inferencing. Predicate Logic. Graph Theory. Relations. Transitive Closure and Warshall's Algorithm. Equivalence and Partial Ordering Relations. Trees. Algebraic Systems. Languages, Automata and Grammars. Prime Numbers and Cryptosystems. Bibliography. Index.

Latest Print 2015 / 360 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5074-8 / ₹ 350.00 / (e-book also available)

DEO

Graph Theory with Applications to Engineering and Computer Science

NARSINGH DEO, *Charles E. Millican Professor, Department of Computer Science, University of Central Florida.*

Because of its inherent simplicity, graph theory has a wide range of applications in engineering and in physical sciences. It also has uses in social sciences, in linguistics and in numerous other areas. In fact, a graph can be used to represent almost any physical situation, involving discrete objects and the relationship among them. Now with the solutions to engineering and other problems becoming fairly complex leading to larger graphs, it is virtually becoming difficult to analyze problems without the use of computers.

This book provides a rigorous yet informal treatment of graph theory with an increased emphasis on computational aspects of graph theory and graph-theoretic algorithms. Numerous applications to actual engineering problems are incorporated with software design and optimization topics.

Contents: Preface. Introduction. Paths and Circuits. Trees and Fundamental Circuits. Cut-Sets and Cut-Vertices. Planar and Dual Graphs. Vector Spaces of a Graph. Matrix Representation of Graphs, Coloring, Covering, and Partitioning. Directed Graphs. Enumeration of Graphs. Graph Theoretic Algorithms and Computer Programs. Graphs in Switching and Coding Theory. Electrical Network Analysis by Graph Theory. Graph Theory in Operations Research. Survey of other Appli-cations. Appendix A: Binet-Cauchy Theorem. Appendix B: Nullity of a Matrix and Sylvester's Law. Index.

Latest Print 2016 / 496 pp. / 15.3 × 22.9 cm
ISBN-978-81-203-0145-0 / ₹ 250.00 / (e-book also available)

RAJPUT

Advanced Discrete Mathematics

UDAY SINGH RAJPUT, *Assistant Professor in the Department of Mathematics and Astronomy, Lucknow University, Lucknow.*

Written in an accessible style, this text provides a complete coverage of discrete mathematics and its applications at an appropriate level of rigour.

The book discusses algebraic structures, mathematical logic, lattices, Boolean algebra, graph theory, automata theory, grammars and recurrence relations. It covers the important topics such as coding theory, Dijkstra's shortest path algorithm, reverse polish notation, Warshall's algorithm, Menger's theorem, Turing machine, and LR(k) parsers, which form a part of the fundamental applications of discrete mathematics in computer science. In addition, Pigeonhole principle, ring homomorphism, field and integral domain, trees, network flows, languages, and recurrence relations. The text is supported with a large number of examples, worked-out problems and diagrams that help students understand the theoretical explanations.

The book is intended as a text for postgraduate students of mathematics, computer science, and computer applications. In addition, it will be extremely useful for the under-graduate students of computer science and engineering.

Contents: Preface. Part A: Algebraic structure—Preliminaries of Set Theory. Relations and Functions. Semigroup. Monoid. Group. Ring Theory. Part B: Mathematical Logic—Statement Calculus. Predicate Calculus. Part C: Lattice and Boolean Structure—Lattice Theory. Boolean Algebra. Boolean Function Minimization. Logic Gates and Circuit Design. Part D: Graph Theory—Directed and Undirected Graphs. Planarity and Trees. Graph Connectivity and Flow Network. Part E: Automata Theory and Grammar—Finite State Automaton. Grammars and Languages. Part F: Recurrence Relations—Discrete Numeric Functions and Recurrence Relations. Symbols. Bibliography. Answers to Exercises. Index.

Latest Print 2012 / 400 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4589-8 / ₹ 350.00 / (e-book also available)

SARKAR & CHAKRABORTY

Combinatorics and Graph Theory

BIKASH KANTI SARKAR, *Assistant Professor, Department of Computer Science and Engineering, BIT, Mesra, Ranchi.*
SWAPAN KUMAR CHAKRABORTY, *Professor, Department of Mathematics, BIT, Mesra, Ranchi.*

Combinatorics and Graph Theory is designed as a textbook for undergraduate students of computer science and engineering and postgraduate students of computer applications. The book seeks to introduce students to the mathematical concepts needed to develop abstract thinking and problem solving—important prerequisites for the study of computer science.

The book provides an exhaustive coverage of various concepts and remarkable introduction of several topics of combinatorics and graph theory. The book presents an informative exposure for beginners and acts as a reference for advanced students. It highlights comprehensive and rigorous views of combinatorics and graphs. The text shows simplicity and step-by-step concepts throughout and is profusely illustrated with diagrams. The real-world applications corresponding to the topics are appropriately highlighted. The chapters have also been interspersed throughout with numerous interesting and instructional notes.

Written in a lucid style, the book helps students apply the mathematical tools to computer-related concepts and consists of around 600 worked-out examples which motivate students as a self-learning mode.

KEY FEATURES

- Contains various exercises with their answers or hints.
- Lays emphasis on the applicability of mathematical structures to computer science.
- Includes competitive examinations' questions asked in GATE, NET, SET, etc.

Contents: Preface. Introductory Linear Algebra. Combinatorics: Principles of Counting—Part A. Combinatorics: Principles of Counting—Part B. Fundamental of Probability. Graph Theory. Graph Representations and Traversals. Planar Graphs and Colouring. Trees. Network Flows. Appendix A: Social Networks. Appendix B: Competitive Examination. Bibliography. Index.

Latest Print 2016 / 532 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5173-8 / ₹ 550.00 / (e-book also available)

SATYANARAYANA & PRASAD

Discrete Mathematics and Graph Theory, 2nd ed.

BHAVANARI SATYANARAYANA, *Professor of Mathematics at Acharya Nagarjuna University, Nagarjuna Nagar, Andhra Pradesh.*
KUNCHAM SYAM PRASAD, *Associate Professor of Mathematics at Manipal Institute of Technology, Manipal, Karnataka.*

This comprehensive and self-contained text provides a thorough understanding of the concepts and applications of discrete mathematics and graph theory. It is written in such a manner that beginners can develop an interest in the subject. Besides providing the essentials of theory, the book helps develop problem-solving techniques and sharpens the skill of thinking logically.

The book is organized in two parts. The first part on discrete mathematics covers a wide range of topics such as predicate logic, recurrences, generating function, combinatorics, partially ordered sets, lattices, Boolean algebra, finite state machines, finite fields, elementary number theory and discrete probability. The second part on graph theory covers planarity, colouring and partitioning, directed and algebraic graphs.

In the **Second Edition**, more exercises with answers have been added in various chapters. Besides, an appendix on languages has also been included at the end of the book.

The book is intended to serve as a textbook for undergraduate engineering students of computer science and engineering, information communication technology (ICT), and undergraduate and postgraduate students of mathematics. It will also be useful for undergraduate and postgraduate students of computer applications.

KEY FEATURES

- Provides algorithms and flow charts to explain several concepts.
- Gives a large number of examples to illustrate the concepts discussed.
- Includes many worked-out problems to enhance the student's grasp of the subject.
- Provides exercises with answers to strengthen the student's problem-solving ability.

Contents: Preface. Part I: DISCRETE MATHEMATICS—Preliminary Notations. Fundamentals of Logic. Recurrences and Integer Functions. Counting Techniques. Algebraic Systems. Partially-Ordered Sets. Lattices. Boolean Algebras. Finite Machines. Finite Fields. Elementary Number Theory. Discrete Probability. Part II: GRAPH THEORY—Preliminary Concepts. Planarity, Colouring and Partitioning. Some Algebraic Aspects of Graphs. Directed Graphs. Appendix: Languages. Bibliography. Glossary. Index.

Latest Print 2014 / 496 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4948-3 / ₹ 395.00 / (e-book also available)

SINGH

Graph Theory

G. SURESH SINGH, *Reader, Department of Mathematics, University of Kerala, Trivandrum.*

Graphical representations have given a new dimension to the problem solving exercise in diverse subjects like mathematics, bio-sciences, chemical sciences, computer science and information technology, social sciences and linguistics. This book is devoted to the models of graph theory, and the solutions provided by these models to the problems encountered in these diverse fields of study.

The text offers a comprehensive and coherent introduction to the fundamentals of graph theory, besides giving an application based approach to the subject. Divided into 13 chapters, the book begins with explicating the basics of graph theory, moving onto the techniques involved while drawing the graphs.

The subsequent chapters dwell onto the problems solved by the Ramsey table and Perfect graphs. The algebraic graphs and their concepts are also explained with great precision. The concluding chapters discuss research oriented methodologies carried out in the field of graph theory. The research works include the work done by the author himself such as on Union Graphs and Triangular Graceful Graphs, and their ramifications.

Primarily intended as a textbook for the undergraduate and postgraduate students of mathematics and computer science, this book will be equally useful for the undergraduate students of engineering. Apart from that, the book can be used as a reference by the researchers and mathematicians.

KEY FEATURES

- Incorporates numerous graphical representations in the form of well-labelled diagrams
- Presents a balanced approach with the help of worked-out examples, algorithms, definitions and remarks
- Comprises chapter-end exercises to judge students' comprehension of the subject

Contents: Foreword. Preface. Acknowledgements. Graph Theory: An Overview. Tree Graphs. Connectivity. Eulerian and Hamiltonian Graphs. Matchings and Factorizations. Graph Colourings and Enumeration. Planar Graphs. Network Flows. Ramsey Problem and Perfect Graphs. Algebraic Specifications of Graphs. Intervals and Median Graphs. Graph Labellings. Domination in Grpahs. Index.

Latest Print 2010 / 288 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4105-0 / ₹ 250.00 / (e-book also available)

SOMASUNDARAM

Discrete Mathematical Structures

Rm. SOMASUNDARAM, *is a Reader in Mathematics in the Faculty of Engineering, Annamalai University.*

This book provides an accessible introduction to discrete mathematics and meets the needs of undergraduate students of computer engineering and undergraduate and postgraduate students of computer science applications. It covers every essential topic in discrete mathematics in a logical coherent fashion, with an emphasis on basic theory and applications. Without assuming much mathematical background, it elucidates concepts that have wide applications in computer science, engineering, and mathematics. Each concept is explained with the help of examples.

The book is designed to enhance students' ability to perceive, to formulate, and to solve computer-related problems in a mathematical way. Numerous worked examples and exercises enhance students' understanding of the topics presented.

KEY FEATURES

- Gives computer representations of several mathematical structures.
- Presents detailed discussion of logic, recursion, combinatorics, recurrence relations, algebraic structures, graphs, and trees.
- Provides introduction to automata theory.
- Uses algorithmic approach to explain several concepts.
- 313 worked examples are provided—clear, well presented and thought provoking.
- 280 problems are given as exercises.

Contents: Preface. Fundamentals and Logic. Relations and Functions. Combinatories and Recurrence Relations.

Algebraic Structures. Order Relations and Structures. Graph and Trees. Grammars, Languages and Automation. Answers. Index.

Latest Print 2009 / 284 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-2201-1 / ₹ 175.00 / (e-book also available)

E-Commerce

AWAD

Electronic Commerce: From Vision to Fulfillment, 3rd ed.

ELIAS M. AWAD, *McIntire School of Commerce, University of Virginia.*

This book, now in its third edition, is aimed at the undergraduate/graduate level of courses in Electronic Commerce. It provides the necessary tools and technology for students in order to have an over-view of managerial and technical concepts of e-commerce. The text follows a life cycle approach to show students the entire process of e-commerce from "vision" or strategic planning to "fulfillment" for delivery of products and services with the goal of customer satisfaction.

The edition stands out in terms of lucidity, ease of learning, and the approach taken to integrate concepts, methodologies, processes and technologies via a life-cycle approach to e-commerce. The key features of this edition are

- **Revised! Chapter 12 covers e-core values: Legal, Ethical, Taxation, and International Issues.**
  - o Includes new coverage on the professional ethicist, taxation issues, online gambling, and issues for developing countries.
- **New! Coverage of security threats**
  - o Discusses topics such as blogging and its growth, ID theft and privacy issues, phishing and its impact, money laundering and terrorism, spyware, adware, pop up ads and how to block them, encryption, hackers, spammers, cookies, worms, intelligent agents, etc...
- **Fully Updated! Boxes and tables have been updated to reflect recent or current events**
  - o Keeps students abreast of recent trends.
- **Key topics added, chapter highlights include:**
  - o Ch. 1: Digital divide, e-learning, value chain, supply chain management (SCM), and e-business models
  - o Ch. 3: Focuses on how information is transferred via the Internet and Open System Inter-connection (OSI)
  - o Ch. 4: More updates on the technical infra-structure, Instant Messaging, spamming and appropriate e-mail use, e-mail etiquette, and extranets and SCM
  - o Ch. 5: Discussion on the types of service providers and web hosting services, more on packets and routers, and application service providers (ASP)
  - o Ch. 6: Mobile commerce, bluetooth applications, wireless security, satellite technology, security and legal issues in wireless application protocol
  - o Ch. 8: Geometric shapes and gender differences on web sites and helping those that are color blind and impaired vision
  - o Ch. 9: Permission marketing, Customer relationship management, and Cultural differences and e-marketing
  - o Ch. 10: Search engines and web portals, enterprise portal technologies, knowledge portals, and mobile web services
  - o Ch. 15: Mobile commerce and mobile payments, internet based payment system models, and credit card laundering

Contents: Preface. Part I: First Things First—The Dawn of a Maturing Industry. The World Wide Web. Part II: The Technology of E-Commerce—Internet Architecture. Intranets and Extranets. Hosting Your Web Site. Mobile Commerce: The Business of Time. Part III: E-Strategies and Tactics—Building E-Presence. Web Site Evaluation and Usability Testing. Internet Marketing. Web Portals and Web Services. Business-to-Business. E-Commerce. E-Core Values: Ethical, Legal, Taxation, and International Issues. Part IV: Security Threats and Payment Systems—E-Security and the USA Patriot Act. Encryption: A Matter of Trust. Getting the Money. Part V: Managerial and Customer-Related Issues—Going Online. References. Index.

Latest Print 2015 / 576 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3027-6 / ₹ 375.00

BANDYOPADHYAY

Mobile Commerce

KARABI BANDYOPADHYAY, *Chairperson, Technology and Faculty, Information Systems, in International School of Business & Media, Kolkata.*

Once the treasured piece of the elite class, mobile phones have now become a prerequisite of every commoner. From schoolchildren to pensioners, from bureaucrats to fruit vendors, all depend greatly on their mobile phones. The reason can be given to its impeccable potential to perform various applications efficiently, within no time. This book on Mobile Commerce gives an in-depth insight on the role of a mobile in revolutionizing various industry verticals, specifically business and commerce.

The book shows the evolution of a mobile phone from a mere gadget meant for communication to a smarter one performing business transactions. The book is divided into seven parts segregated as—Basic concepts, Technology, Key players, Key products, Security of legal aspects, the Future trends and the Case studies. The book also discusses various technologically advanced handheld devices, like Smartphones, PDA's, Laptops, Tablets and Portable gaming consoles, in detail.

Besides, the basic technology and concepts involved in mobile commerce is discussed comprehensively. The key concepts, like mobile marketing, mobile ticketing, mobile computing, mobile payments and mobile banking are discussed vis-a-vis latest technologies, like wireless and

mobile communication technology, digital cellular technology, mobile access technology and 4G and 5G systems.

The book also throws light on the issues, such as mobile security hazards, and the necessary measures to protect the same. A chapter is devoted to laws governing the mobile phone usage and its privacy. The Case Studies are provided elucidating the role of mobile commerce in the real-life scenarios.

This book is intended for the undergraduate and postgraduate students of Communication Engineering, Information Technology and Management.

Contents: Preface. Part I: Mobile Commerce Basics—Introduction to M-commerce. Mobile Commerce Services. Mobile Commerce Applications. Part II: Mobile Commerce Technology—Wireless and Mobile Communi-cation. Digital Cellular Technology. Mobile Access Technology. 4g and 5g Systems. Part III: Key Players—Mobile Devices. Mobile Service Providers. Part IV: Mobile Products—Mobile Banking. Mobile Ticketing. Mobile Paymant Systems. Mobile Computing. Part V: Security and Legal Aspects—Security and Privacy Issues. Legal Aspects. Part VI: The Path Ahead—Future of Mobile Commerce. Part VII: Case Studies—Mobile Commerce Case Studies. References. Index.

Latest Print 2013 / 384 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4805-9 / ₹ 395.00 / (e-book also available)

JOSEPH

E-Commerce: An Indian Perspective, 5th ed.

P.T. JOSEPH, S.J., *Director, at Marian International Institute of Management, Kuttikkanam, Kerala.*

Electronic Commerce, popularly known as E-commerce is booming in India offering new ways of doing business. Referring to aspects of online business involving exchanges among customers, business partners and vendors, e-commerce has increased the speed and ease with which business can be transacted today, resulting in intense competition between enterprises. Companies are at the crossroads, with just two vistas ahead of them—either go online or go out of business. The comprehensive coverage of this **Fifth Edition** equips the students with the latest information on e-commerce—concepts, models, strategies, and techniques that can be used to build useful e-commerce applications.

The range of topics covered is broad, making this book a solid introductory text for the rapidly expanding number of courses in e-commerce for business students at undergraduate or postgraduate level, and also for the students pursuing courses in computer applications, information technology and information science.

The book features several comprehensive and diverse case studies and data on Indian corporations, as well as multinational companies showing success and failure of their Web-based electronic business models. New material on developments in technology and taxation issues have been added.

This fundamental treatment of the subject of e-commerce coupled with a clear and practical analysis of market models, continues to make this text an invaluable single source guide for students—arming them with skills to deal successfully with the managerial issues they will face as future business professionals.

KEY FEATURES

- Incorporates a new chapter *E-commerce Laws and Taxation Issues.*
- Provides coverage of all elements of e-commerce including customer relationship, supply chain management, e-payment, e-security, mobile commerce, and Web designing.
- Addresses key legal issues related to taxation, privacy, copyright, and so forth.
- Gives the end-of-chapter Internet search exercises to help students develop analytical skills.
- Defines key technical terms in the glossary.

Contents: Preface. History of E-commerce and Indian Business Context. Business Models for E-commerce. Enabling Technologies of the World Wide Web. e-Marketing. e-Security. e-Payment Systems. e-Customer Relationship Management. e-Supply Chain Management. e-Strategy and Knowledge Management. Information Systems for Mobile Commerce. Portals for E-business. Legal and Ethical Issues. E-commerce Laws and Taxation Issues. Glossary. Index.

Latest Print 2015 / 556 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5154-7 / ₹ 450.00 / (e-book also available)

RAJARAMAN

Essentials of E-Commerce Technology

V. RAJARAMAN, *Honorary Professor in the Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

This book is designed to acquaint the readers with major aspects of e-commerce with particular emphasis on technology such as cryptography, e-payment and mobile payment security.

The book presents a layered architecture of e-commerce systems with six layers. The physical layer (the bottommost layer) described first, provides the basic communication infrastructure needed by e-commerce. The next layer described is the logical layer consisting of Local Area Networks, the Internet, Intranet, etc. which provide connectivity. The layer above is the network services layer which provides e-mail and World Wide Web applications. Above this is a very important messaging layer of e-commerce which provides facilities for exchanging messages securely using the communication infrastructure. Here various methods of encryption, public key infrastructure and digital signature are discussed. It is also explained as to how the messaging layer is used to exchange structured electronic documents, using XML. The next layer called middleman services layer, describes the design of home page of an organization and elaborates various payment services such as credit card, e-cash,

smart card, etc. The topmost layer is on applications, namely, B2C, B2B and C2C e-commerce which are defined and described at the beginning of the book.

As use of mobile phones and mobile network is rapidly increasing, a whole chapter is devoted to explain m-commerce. Of special interest are detailed discussions of Wireless Application Protocol, security issues and payment methods.

A complete chapter is also devoted to new developments in multimedia information goods such as e-books, MP3 compressed audio and digital quality video. A unique feature of these goods is the method of delivery which also uses the mobile Internet infrastructure.

Finally, the legal framework of e-commerce provided by the Information Technology Act 2000 (and the amended act of 2008) is explained.

This book with its numerous student-friendly features is an ideal text for undergraduate and postgraduate students of Computer Science and Information Technology (BSc and MSc), Computer Applications (BCA and MCA), and for undergraduate engineering students of Computer Science and Engineering and Information Technology. Besides, it would be useful to professionals for quickly understanding the basics of e-commerce.

KEY FEATURES

- Gives detailed discussions of security and payment schemes in e-commerce.
- Discusses essentials of m-commerce technology including WAP protocol and mobile security.
- Discusses e-commerce of multimedia such as e-books, MP3 audio and video on demand.
- Provides learning aids such as chapter summaries, over 300 review questions and 350 objective type questions.

Contents: Preface. What is Electronic Commerce? Infrastructure for E-Commerce. Communication Networks for E-Commerce. Network Services. Secure Messaging. Payment Systems in E-Commerce. Structured Electronic Documents. M-Commerce. E-Commerce of Multimedia. Legal Framework of E-Commerce. References. Answers to Objective Questions. Index.

Latest Print 2011 / 260 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3937-8 / ₹ 250.00 / (e-book also available)

Enterprise Resource Planning

ALTEKAR

Enterprisewide Resource Planning: Theory and Practice

RAHUL V. ALTEKAR, *Senior Functional Architect, JDA India, Hyderabad.*

He can be reached at **altekarrahul@consultant.com**

Over the last two decades, large corporations and companies worldwide have been implementing Enterprisewide Resource Planning (ERP) applications. This has today percolated down to the midsize companies as the benefits of ERP applications are appreciated. Not surprisingly, in business schools across the country, ERP has become a popular and major subject of study. This accessible, easy-to-read book explains the ERP concept, its theory and implementation with **practical case studies.** Throughout, the focus remains on the *Indian scenario.* While Part I of the book deals with the theory of ERP with detailed discussions on best practices in ERP, ERP vendor analysis, its basic functional modules and its implementation, Part II describes ERP "As Is" to ERP "To Be".

The book details and delineates the fundamental and advanced features of ERP in a style that is intelligible to the reader. It presents a structured methodology designed to help students understand the conceptual elements of ERP as well its implementation.

The book is intended as a text for postgraduate students of management and as a valuable reference for the practicing professionals. That it is based on the author's vast experience in the subject in more than 65 Indian manufacturing companies, and is a reader-friendly text with a number of diagrams, screenshots, and tables further enhances its value.

Contents: Preface. Part I: Theory of ERP. Introduction. Origin, Evolution and Structure. The Best Practices in ERP. ERP Vendor Analysis. Basic Functional Modules in ERP. ERP Implementation. Part II: Making ERP A Success—ERP "As Is". ERP "To Be". Bibliography. Index.

Latest Print 2013 / 164 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-2633-0 / ₹ 175.00 / (e-book also available)

GARG & VENKITAKRISHNAN

Enterprise Resource Planning: Concepts and Practice, 2nd ed.

VINOD KUMAR GARG *is Professor of Information Management at S.P. Jain Institute of Management and Research, Mumbai.*

N.K. VENKITAKRISHNAN *is General Manager, Sales, for a leading software organization based in Mumbai.*

Enterprise Resource Planning (ERP), one of the fastest growing segments in Information Technology today, enables organizations to respond quickly to the ever increasing customer needs and to capitalize on market opportunities.

This revised edition continues to throw light on the significance of Business Engineering and its link with Information Technology. Besides, it discusses the role of consultants, vendors and users, the process of customization, as well as the methodology and guidelines for ERP implementation.

Intended for the discerning chief executives, functional managers, MIS managers and students of management courses, the book should also serve as a complete

reference for understanding the concepts of ERP and enable organizations to implement ERP solutions.

HIGHLIGHTS OF THE SECOND EDITION

- Focusses on Indian ERP packages, with a new section on "Example of an Indian ERP Package".
- Provides Answers at the end of the book to most of the problems given at the end of each chapter for the benefit of both the students and the teachers.

KEY FEATURES

- Discusses ERP, its scope, benefits and its evolution in an easy-to-read style.
- Helps understand the business processes that underlie a business management information system, and how ERP fits into the business model.
- Shows how a company can win orders in a competitive environment, using ERP as a tool.
- Presents the key features of some of the leading ERP packages marketed, and a few case studies on some major companies which have successfully implemented ERP solution.

Contents: Preface. Preface to the First Edition. Acknowledgements. Prologue. ERP—A Curtain Raiser. Business Engineering and ERP. Business Modelling for ERP. ERP Implementation. ERP and the Competitive Advantage. The ERP Domain. Marketing of ERP. Case Studies. Appendix. Further Reading. Answers to Selected Problems. Index.

Latest Print 2014 / 200 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-2254-7 / ₹ 175.00 / (e-book also available)

SAP HR and MM Modules

AGRAWAL

SAP HR India Payroll: Technical Reference and Learning Guide

P. K. AGRAWAL*, Program Manager at Tata Technologies Limited, Pune.*

This book explains all the concepts underpinning the India Payroll module of SAP HR. It is a comprehensive technical manual which explains every single node of the User Menu and Configuration. The book first gives an overview of a concept explaining what it is, how it is used and how it relates to the other concepts. It then explains its properties, which are fields in a configuration node.

This book is designed to be used both as a reference manual and a learning guide. As a learning guide, it offers four views, each for a different target audience.

- It can be read from the Senior Management's perspective to gain a broad understanding of the subject and what SAP can do for them.
- Business Process Owners can achieve a higher level of understanding by getting to know more of SAP concepts and how to perform different tasks in SAP.
- Users can acquire a thorough understanding of different tasks and concepts underlying them.
- Functional consultants and proficient users can read the book to gain a complete understanding of the system.

As a technical reference, the book can be used to locate the relevant material through the Table of Contents, Index, 'SAP Menu' and 'SAP Customizing Implementation Guide (IMG)'. The last two follow the Table of Contents. If the reader is in SAP's User Menu or Configuration, the chapter number for these nodes can be found in 'SAP Menu' and 'IMG'. If a node is not covered in the book, the reason for not doing so is mentioned.

The implementation of SAP HR India Payroll can also be guided by the structure of this book.

A Better World

There is a lot we can do to make our world a better world, just as we discover better ways to support our businesses. Read short articles inside on some of the ideas of World Integration and Improvement Initiative.

- World Government
- World Language
- Good Governance
- City without Traffic Lights

Contents: SAP Menu. SAP Customizing Implementation Guide. Preface. Wage Types. Wage Type Properties. Wage Type Permissibility. Wage Type Valuation. Wage Type Cumulation. Wage Type Factoring. Basic Salary. Dearness Allowance. Housing. Car and Conveyance. Reimbursements. Long-Term Reimbursements. Bonus. Income from Other Sources. Perquisites. Exemptions. Child Education Exemption. Leave Travel Exemption. Medical Exemption. North-East State Tax Exemption. Leave Encashment Exemption. Voluntary Retirement Exemption. Gratuity. Superannuation. Provident Fund and Pension. Employees' State Insurance. Labour Welfare Fund. Professional Tax. Deductions. One Day Salary Deduction. Claims and Minimum Net Pay. Balances and Totals. Section 80 Deductions. Section 80C Deductions. Section 80U Deductions. Section 89. Salary Projection. Previous Employment Tax Details. Income Tax. Rounding Off Employee Salary. Net Pay and External Transfer. Payroll Area. Payroll Run. Payroll Posting to Accounting. Payment. Form 16 and Form 24. Form 217 (2A). Retroactive Accounting. Termination. Off-Cycle Activities. Nominations. Legacy Data Transfer. Payroll Results. Processing Classes. Cumulation Classes. Evaluation Classes. Schemas, Functions, PCRs, Operations, Features. Utilities. Index. World Government. World Language. Good Governance. City without Traffic Lights.

Latest Print 2013 / 884 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3872-2 / ₹ 595.00 / (e-book also available)

AGRAWAL

SAP HR OM, PD and Training: Technical Reference and Learning Guide

P.K. AGRAWAL *was a Program Manager at Tata Technologies Limited, Pune.*

This book explains all the concepts underpinning the Organizational Management (OM), Personnel Development (PD) and Training and Event Management modules of SAP HR. It is a comprehensive technical manual which explains every single node of the User Menu and the Configuration. The book first gives an overview of a concept explaining what it is, how it is used and how it relates to other concepts. It then explains its properties, which are fields in a configuration node.

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The implementation of SAP HR OM, PD and Training and documentation can also be guided by the structure of this book.

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Books on SAP HR: The following other books on SAP HR have also been published by PHI Learning, New Delhi:

1. *SAP HR Time Management*
2. *SAP HR Personnel Administration and Recruitment*
3. *SAP HR India Payroll*

Contents: SAP Menu. SAP Customizing Implementation Guide. Preface. Section One: Organizational Management—Organizational Plan. Organizational Management Interfaces. Organizational Unit. Position. Job. Person. User. Task. Work Center. Objects. Relationships. Structures. Infotype Features. Infotypes. Plan Version. Planning Status. Authorizations. Organizational Management Integration. Database Utilities and Dialog Control. Data Transfer. Organization and Staffing Interface Customizing. Data Model. Section Two: Personnel Development—Qualifications Catalog. Profiles. Career and Succession Planning. Development Plan. Appraisals. Personnel Development Integration. Section Three: Training and Event Management—Business Event Catalog. Business Event Group. Business Event Type. Dynamic Menus. Resources. Business Events. Attendee. Attendance. Correspondence. Training Integration. Utilities. Index. World Government. World Language. Good Governance. City without Traffic Lights.

Latest Print 2014 / 784 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3984-2 / ₹ 595.00 / (e-book also available)

AGRAWAL

SAP HR Personnel Administration and Recruitment: Technical Reference and Learning Guide, 2nd ed.

P.K. AGRAWAL *was a Program Manager at Tata Technologies Limited, Pune.*

SAP HR BOOKS

This book is one of the set of our four books on SAP HR written by the author:

- SAP HR OM, PD and Training
- SAP HR Personnel Administration and Recruitment
- SAP HR Time Management
- SAP HR India Payroll

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- World Government
- World Language
- Good Governance
- City without Traffic Lights

SAP is a great software. One needs to fully understand its features in order to effectively exploit them for the benefit of customers. Mr. Agrawal's books on SAP HR have a unique approach. A chapter usually focuses on a single business concept, and discusses the user interface as well as its associated configuration. This logical division makes it easier for readers to understand the functionality.

Another important feature of these books is the level of detail. Each screen and each field in a screen is explained. Explanation includes meaning, use case and in some cases guidelines. Details are balanced by overviews explaining the concepts and their relationships.

While explaining functionality, Mr. Agrawal has made efforts to highlight what can be done and how it is to be done. This is particularly important for less experienced users and consultants.

Indicating chapter numbers against each menu and configuration item is a very useful innovation, as it establishes direct link between the SAP system and the book.

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Mr. Agrawal has taken considerable pains in writing these books, and I congratulate Mr. Agrawal on his achievement and thank him for his contribution to the SAP community.

—K. Sanjai, Regional Head–Asia Pacific & Japan, SAP Global Delivery

Contents: SAP Menu. SAP Customizing Implementation Guide. Preface. Personnel Administration—Infotypes. Common Infotype Structure. Actions. Organizational Assignment. Personal Data. Payroll Status. Challenge. Addresses. Planned Working Time. Contract Elements. Monitoring of Tasks. Family Member/Dependents. Education. Other/Previous Employers. Skills. Internal Medical Service. Powers of Attorney. Internal Data. Corporate Functions. Company Instructions. Insurance. Objects on Loan. Date Specifications. Works Councils. Disciplinary Action and Grievances. Communication. Employee's Applicant Number. Calculation of Employment Period. Wage Type. Basic Pay. Bank Details. External Bank Transfers. Recurring Payments/Deductions. Additional Payments. Cost Distribution. Loans. Membership Fees. Notifications. Additional Off-cycle Payments. ESS Settings Remuneration Statement. Infotype Properties. Infotype Menus. Infotype Screens. Infotype Change Tracking. Cost Assignment. Payment Model. Ad Hoc Query. HIS. Authorizations. Optical Archiving. Concurrent Employment. Recruitment—Recruitment Process. Applicant. Application. Vacancy Assignment. Applicant Action. Applicant Activities. Applicant Activity Status. Applicant's Personnel Number. Applicant's Organizational Assignment. Applicant's Contract Elements. Other Recruitment Configuration. Utilities. Index. World Government. World Language. Good Governance. City without Traffic Lights.

Latest Print 2014 / 720 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4223-1 / ₹ 595.00 / (e-book also available)

AGRAWAL

SAP HR Time Management: Technical Reference and Learning Guide, 2nd ed.

P.K. AGRAWAL *was a Program Manager at Tata Technologies Limited, Pune.*

He has written the following books on SAP HR:

- SAP HR OM, PD and Training
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- SAP HR India Payroll

This book explains all the concepts underpinning SAP's HR Time Management Module. It is a comprehensive technical manual which explains every single node of the User Menu and the Configuration. The book first gives an overview of a concept explaining what it is, how it is used and how it relates to the other concepts. It then explains its properties, which are fields in a configuration node.

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- World Government, 691
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- Good Governance, 699
- City without Traffic Lights, 705

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—K. Sanjai, Regional Head–Asia Pacific & Japan, SAP Global Delivery

Contents: Preface. Infotypes. Employee Groupings. Work Schedule. Substitution. Absence. Attendance. Absence Quota. Quota Correction. Attendance Quota. Quota Compensation. Overtime. Availability. Time Recording. Time Events. Time Transfer. Employee Remuneration. Maternity Leave. Military Service. Additional Absence Data. Flextime. Activity Allocation. Cost Assignment. External Services. Different Payment. Time Data Collection. Employee Expenditure Collection. Logistics Integration. Time Evaluation Configuration. Cluster B1. Cluster B2 (Time Evaluation Results). Internal Tables. Time Evaluation with Clock Times (Schema TM00). Schemas, Functions, PCRs, Operations, Features. Time Manager's Workplace. Time Management Pool. Cross-Application Time Sheet. Incentive Wages. Shift Planning. Utilities. Index. World Government. World Language. Good Governance. City without Traffic Lights.

Latest Print 2014 / 756 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4065-7 / ₹ 595.00 / (e-book also available)

AGRAWAL

SAP MM Consumption Based MRP

P.K. AGRAWAL, *formerly Program Manager at Tata Technologies Limited, Pune.*

Consumption-based MRP is an important business process in almost every company. In SAP, you can plan material requirements based on consumption. SAP provides important functionalities like determining net requirement, procurement dates, etc. This book explains all the concepts underpinning SAP's MM Consumption based MRP Module. It is a comprehensive technical manual which explains every single node of the User Menu and the Configuration.

The book is organized in chapters that are important business activities. The author has taken care to balance details with overviews that explain linkages between concepts. In this book, like author's earlier books, he explains every screen of SAP MM Consumption based MRP. Divided into 16 chapters, the book clearly explains both the SAP Menu and the Customizing Implementation Guide. It also indicates the chapter number where these are covered, thereby creating a direct link between the book and the SAP software. The implementation of SAP MM Consumption Based MRP and documentation can also be guided by the structure of this book.

This book is designed to be used both as a reference manual and a learning guide. As a learning guide, it offers four views, each for a different target audience.

- It can be read from the Senior Management's perspective to gain a broad understanding of the subject and what SAP can do for them.
- Business Process Owners can achieve a higher level of understanding by getting to know more of SAP concepts and how to perform different tasks in SAP.
- Users can acquire a thorough understanding of different tasks and concepts underlying them.
- Functional consultants and proficient users can read the book to gain a complete understanding of the system.

Contents: Preface. Enterprise Structure. Material. Material Requirements Planning. Reorder Point Planning. Forecast-based Planning. Time-phased Materials Planning. Forecasting. Net Requirements. Procurement Quantities. Procurement Dates. Sources of Supply. Procurement Proposals. Planning Run. Post Planning Activities. MRP List and Stock/Requirements List. Utilities. Index.

Latest Print 2016 / 544 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5094-6 / ₹ 550.00 / (e-book also available)

AGRAWAL

SAP MM Inventory Management: Technical Reference and Learning Guide

P.K. AGRAWAL *was a Program Manager at Tata Technologies Limited, Pune.*

SAP is a powerful software that meets the requirement of business all over the world. This well-organised book comprising 34 chapters is useful for both beginners and professionals. Being a learning guide and a user manual, the book will be immensely valuable for all those who are training to be SAP consultant. If you are a material/ production manager, a QM professional or a business executive, you will find that the book brings a lot of convenience in your work and minimises inventory losses.

A New Approach to SAP Implementation

Structured dialog: The dialog between the consultant and the users should be based on the structure of this book. The consultant would demonstrate a business transaction, e.g. goods receipt, in its simplest form. He would then explain the data items on the screens, their meaning and significance. He would enquire whether the data item is relevant for the client company. The data items that are not relevant can be hidden in the implementation, and related configuration marked as not required. When the consultant would come to a section explaining IMG node,

his questions to the user would be designed to collect the information required to configure that node.

Prototyping: As the structured dialog continues, the consultant would go on doing the configuration. By the end of the dialog, the consultant would have built a company-specific prototype.

Training and trials: The prototype would be a rough-cut implementation of SAP for the company. It would be used for training the users. After training, the users would try out the system. They would perform routine transactions several times using real-life data of their company. They would try different scenarios and record their observations.

Refinement: After prototype trials, the consultant and the users would sit together to discuss what the users required to do, but could not do with the prototype. The consultant would use this input to refine the prototype and to build new functionality, if needed.

Configuration manual: The documentation of SAP implementation includes a configuration manual. This configuration manual should be structured on the lines of this book as explained in Chapter 34. Such a configuration manual will be easy to understand as it groups logically related elements together.

User manual: This book will serve as a generic user manual. Company-specific user manual can also be structured on the lines of this book including only company-specific guidelines for the users.

Contents: SAP Menu. SAP Customizing Implementation Guide. Reasons for 'why not covered'. Preface. Enterprise Structure. Material. Goods and Accounts Movement. Stock. Goods Receipt. Goods Issue. Goods Return. Stock Transfer. Transfer Posting. Customer Returns. Sub-contracting. Consignment Stock of Vendor. Consignment Stock with Customer. Project Stock. Sales Order Stock. Pipeline Material. Returnable Transport Packaging of Vendor. Returnable Transport Packaging with Customer. Goods Movement Reversal. Screen Layout. Movement Type and Other Configurations. Material Document. Accounting Documents. Output Determination. Material Valuation. Account Determination. Stock Determination. Reservation. Physical Inventory. Financial Accounting. Controlling. Periodic Processing. Archiving. Utilities. Index. World Government. World Language. Good Governance. City without Traffic Lights.

Latest Print 2014 / 928 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4976-6 / ₹ 795.00 / (e-book also available)

AGRAWAL

SAP MM Invoice Verification: Technical Reference and Learning Guide

P.K. AGRAWAL *was a Program Manager at Tata Technologies Limited, Pune.*

Invoice verification is an important business process in almost every company. In SAP you can verify invoices against purchase orders and goods receipts. SAP provides important functionalities like automatic account determination, financial posting, etc.

SAP is powerful software that can meet the needs of any business scenario for any type of business in any part of the world. Its all encompassing nature makes SAP complex. In order to derive maximum benefit for business, SAP must be understood well. Mr. Agrawal attempts to explain SAP completely; a seemingly impossible task. This is his third book on the Materials Management module; his first two books in the Materials Management module are 'Purchasing' and 'Inventory Management'.

In this book, like in his earlier books, he explains every screen of SAP MM Invoice Verification. Both the SAP Menu and Customizing Implementation Guide are expanded and the chapter number where they are covered is indicated. This not only creates a direct link between the book and the SAP software, but also ensures that the book is comprehensive.

The author has taken care to balance details with overviews that explain linkages between concepts. The book is organized in chapters that are important business activities. Each chapter covers business processes carried out in SAP by the user as well as its related configuration.

This book can be used to learn SAP from scratch; it is a learning guide. It is, therefore, useful to persons who are training to be SAP Consultants. Having learnt SAP with the help of this book, the Consultant keeps returning to refer to it.

In implementation of SAP, Consultants prepare User Manual. With the availability of this book, their task becomes simpler. In the User Manual, they need to cover only implementation specific points. The user refers to this book as a generic User Manual. As the user gains knowledge he also begins to understand the customizing settings for his implementation.

This book can also be used by Business Process Owners and Senior Managers to get an overview of SAP and the important choices it offers.

Contents: Preface. Enterprise Structure. Material. Procure-to-Pay Cycle. Invoices having System Amount Matching Vendor Amount. Invoices having System Price more than Vendor Price. Invoices having System Price Less than Vendor Price. Invoices having System Quantity more than Vendor Quantity. Invoices having System Quantity less than Vendor Quantity. Invoices without Purchase Order Reference. Invoice Payment Block. Invoice Processes. Invoice Customizing. Evaluated Receipt Settlement. Consignment and Pipeline Settlement. Invoicing Plan Settlement. Credit Memo. Subsequent Debit/Credit. GR/IR Account Maintenance. Account Determination. Messages. Archiving. Utilities. SAP-World Government.

Latest Print 2015 / 620 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5040-3 / ₹ 725.00 / (e-book also available)

AGRAWAL

SAP MM Purchasing: Technical Reference and Learning Guide

P.K. AGRAWAL *was a Program Manager at Tata Technologies Limited, Pune.*

SAP is a powerful software that can meet the needs of any business and for any type of business in any part of the world. Its all encompassing nature makes SAP complex. To understand SAP well, in this book on *SAP MM Purchasing*, like in his earlier four books on SAP (HR module), the author gives an indepth analysis of SAP, with its focus on **materials management purchasing**.

Divided into 26 chapters, the book clearly explains both the SAP Menu and the Customizing Implementation Guide. It also indicates the chapter number where these are covered, thereby creating a direct link between the book and the SAP software.

This well-organized book can be used to learn SAP from scratch. Being a **learning guide**, it would be immensely valuable for all those who are **training to be SAP Consultant**. The book would be especially useful to **Business Process Owners** and **Senior Managers** to get an overview of SAP and the important choices it offers.

SALIENT FEATURES

- The book balances details with overviews which explain linkages between concepts.
- Each chapter forms an important business concept and covers business processes carried out in SAP by the user.
- The book can be used as a **User Manual** by SAP readers.
- SAP implementation becomes easy by using the book.

Contents: Preface. Organization. Material. Vendor. Purchasing Scenarios. Purchasing Document Screens. Purchase Requisition. Request for Quotation/Quotation. Purchase Order. Contract. Scheduling Agreement. Account Assignment. Release Procedure for Purchasing Documents. Release Procedure for Purchase Requisitions. Purchasing Info Record. Source List. Quota Arrangement. Source Determination. Pricing Procedure. Taxes. Vendor Evaluation. Manufacturer Part. Confirmations. Messages. Partners. Archiving. Utilities. Index.

Latest Print 2014 / 928 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4851-6 / ₹ 795.00 / (e-book also available)

General Reference

MOSES

Last Frontiers of the Mind: Challenges of the Digital Age

A. MOHANDAS MOSES, *Retd. IAS.*

In this original and brilliantly written book, Mohandas Moses has embarked on a daring theme—the challenge of artificial intelligence to the human mind and human creativity. The mind, he says, is the greatest invention in the universe; it has created the greatest works of art and science: its dimensions and potential are yet to be fathomed. But now the marvellous human mind stands challenged by the machine.

To illustrate the central theme of his book, the author has brought together the views of a galaxy of eminent philosophers, cognitive scientists and neuroscientists who have explored the phenomenon and evolution of the human mind and consciousness, and the growth of Artificial Intelligence. The author describes the contribution made by the 'Artificial Intelligentsia', the human-computer interaction, and emphasizes the formidable power of the machine mind to usurp the grandeur of the human mind. He has described the manner in which memory, language, creativity, mathematics, teaching-learning and chess-playing could be altered by the digital culture. He says that 'the question we need to ask ourselves as thinking men is—would we like to sense sensations, experience experiences and think thoughts with understanding as human beings should or are our personas to be blue matched to the template of the machine mind?'

With erudition and wry humour the author takes the reader on a fascinating journey of exploration. Written with brilliance and clarity, there is freshness in his perspective and a lucid presentation of ideas. This book will be of great interest as much to academics, experts on artificial intelligence, as to the general reader who wishes to know about the challenges to the human intellect and creativity in the digital age.

Contents: Foreword. Prelude. Acknowledgements. Part I: SETTING THE SCENE—The Jeremiah Scenario "2084": Cargo Pants in the Brain. Methods of Study of Cognitive Sciences. Brain Looks at Mind. The Language of the Brain. Brain Research. Part II: DEBATE ON THE BRAIN-MIND—Neuroscientists Look at Brain-Mind. Evolution of Brain-Mind. Time Looks at Mind. Mind Looks at Mind. Teilhard de Chardin's Views on the Future of Mind. Part III: CONSCIOUSNESS—Cognitive Sciences and Metaphysics. Philosophy of the Mind. Darwin, Mendel and the 1% Genetic Difference. The Origin of Consciousness in the Breakdown of the Bicameral Mind: Julian Jaynes. James Meets Joyce: Views from the Martello Tower. Part IV: ARTIFICIAL INTELLIGENCE AND COGNITIVE SCIENCE—C.P. Snow: The Two Cultures—A Second Look. Prophets and Visionaries of the Digital Age. The Architecture of the Machine Mind. The Artificial Intelligentsia. The Symbiotic Age. The Drive of Technology. Computer Invasion. Part V: RECLAIMING THE HUMAN MIND—Lord Macaulay, Tim Lee-Berners and Language Death. Computer and Surrogate Memory. Computer and Education. Computer and Reading-Writing. The Future of Books and Libraries in the Digital Age. Computer and Feel for Numbers. Chess and Computer. Aesthetics and Calligraphy in the Digital Age. Part VI: FLAVOUR OF THE DIGITAL AGE—The World of Computer Tycoons. Values of the Digital Age.

Part VII: THE INDIVIDUAL AND CREATIVITY—Is Man the Measure of All Things or is He a Chimpanzee Putting on Airs. The Individual is an Embarrassment for Science. The Genius Type. The Wellsprings of Creativity. Challenge to Creativity. The Importance of the Individual. Forecasts and Prescriptions for the Future. Summary. Last Frontiers of the Mind.

Latest Print 2007 / 440 pp. (Hard Cover) / 16.0 × 24.1 cm
ISBN-978-81-203-2851-8 / ₹ 395.00

Human Computer Interaction

KELKAR

Usability and Human–Computer Interaction: A Concise Study

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering, Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay.*

Intended as a handy reference reading for the students of Computer Science and Engineering and Computer Applications, the book delves on the concepts of Human–Computer Interface/Interaction in a bulleted format. The succinct approach of the topics gives the book a simple yet comprehensive appeal; hence making it a perfect learning tool for the students, and teaching aide for the teachers.

Divided into nine chapters and three Appendices, the book has been organized as per the course structure of any University/College. The chapters emphasize on both developmental processes and techniques involved in Human–Computer Interaction. A separate chapter has been devoted to Universal Design, which is the process to reach out to the maximum number of people with their design requirements.

The topics are further elaborated with diagrams and flowcharts, to help make the learning process more illustrative. Appendices to the book are an extension to focus topics that are relevant to learn concepts of Human–Computer Interaction.

Contents: Preface. Abbreviations. Useful, Usable, and Used. Evolution of Interfaces and Interaction Styles. Interface Development Process. Interface Requirements and Quality of Service. Theories, Standards, and Principles. Interface Design Guidelines. Interface Evaluation and Testing. User Support: Help and Documentation. Universal Design. Appendices—A: Understanding the Human Beings. B: Spiraling Opportunities. C: Computer Mediated Communication. Suggested Reading. Index.

Latest Print 2015 / 460 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5162-2 / ₹ 495.00 / (e-book also available)

MEENA & SIVAKUMAR

Human-Computer Interaction

K. MEENA, *former Vice-Chancellor of Bhartidasan University, Tiruchirapalli.*
R. SIVAKUMAR, *Associate Professor and Head of the Department of Computer Science, A.V.V.M. Sri Pushpam College, Poondi, Thanjavur, Tamil Nadu.*

Human-Computer Interaction is the current challenging issue of research and information technologies. The areas of recent research like Usability Engineering, Cognitive Architectures, Spoken Dialogue System and Recommender Systems are covered in the book. Besides the new dimensions of HCI, such as Ontological Engineering, Ambient Intelligence and Ubiquitous Computing are also introduced. Design methodologies of Spoken Dialogue System and the corresponding mathematic models are also presented, whereas the main emphasis is given on the simple presentation and making the cognition process easier for the learners.

The book is an invaluable tool for the students of undergraduate and postgraduate students of computer science and engineering, and information technology. In addition, it is of immense use for the postgraduate students of computer application Besides, researchers will be benefitted from chapter III (Modelling of Understanding Process) and chapter V (Recommender System) as they are based on the review of cognitive architectures and ontological tools. Software Engineers will find the book useful especially for the contents of chapter II (Usability Engineering). Technology innovators will appreciate chapter VII (Ambient Intelligence—The New Dimension of Human Computer Interaction)which discusses advanced technologies, such as ambient intelligence, middleware technologies and ubiquitous computing. Information specialists and web designers will have an interesting experience with chapter VI (Advanced Visualisation Methods) that deals with advanced visualisation techniques.

Contents: Preface. Introduction. Usability Engineering. Modeling of Understanding Process. Spoken Dialogue System. Recommender Systems. Advanced Visualization Methods. Ambient Intelligence: The New Dimension of Human Computer Interaction. Index.

Latest Print 2014 / 284 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5050-2 / ₹ 350.00 / (e-book also available)

Information Security

GUPTA

Cryptography and Network Security

PRAKASH C. GUPTA *is a leading author and consultant on telecom networks. He was Deputy Director General, Department of Telecom, Head Data Networks, Reliance Communications, Head of Department (IT), Maharashtra Institute of Technology, Pune.*

The book is intended for the undergraduate and

postgraduate students of computer science and engineering and information technology, and the students of master of computer applications. The purpose of this book is to introduce this subject as a comprehensive text which is self contained and covers all the aspects of network security.

Each chapter is divided into sections and subsections to facilitate design of the curriculum as per the academic needs. The text contains numerous examples and illustrations that enhance conceptual clarity. Each chapter has set of problems at the end of chapter that inspire the reader to test his understanding of the subject. Answers to most of the problems are given at the end of the book.

KEY FEATURES

- The subject matter is illustrated with about 200 figures and numerous examples at every stage of learning.
- The list of recommended books, technical articles, and standards is included chapter-wise at the end of the book.
- An exhaustive glossary and a list of frequently used acronyms are also given.
- The book is based on the latest versions of the protocols (TLS, IKE, IPsec, S/MIME, Kerberos, X.509 etc.).

Contents: Preface. Abbreviations. Introduction to Network Security. Mathematical Foundations I (Modular Arithmetic). Classical Encryption Techniques. Symmetric-key Ciphers I: Data Encryption Standard. Mathematical Foundations II (Finite Fields). Symmetric-key Ciphers II: Advanced Encryption Standard. Symmetric-key Ciphers III (Modes of Operation, Stream Ciphers). Mathematical Foundations III (Prime Numbers). Asymmetric-key Cryptosystems. Elliptic Curve Cryptography. Message Authentication. Digital Signatures. Entity Authentication. Symmetric-key Distribution. Public-key Distribution. Email Security. Transport Layer Security (TLS). IP Security. Internet Key Exchange (IKE). Wireless LAN Security. Network Vulnerabilities. Firewalls and Intrusion Detection Systems. Malware. Appendices—A1: Prime Numbers, Primitive Roots, Irreducible Polynomials. A2: Birthday Problems. A3: Networking Protocols for User Authentication. Glossary. Answers to Selected Problems. Index.

Latest Print 2014 / 480 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5045-8 / ₹ 450.00 / (e-book also available)

HARISH CHANDER

Cyber Laws and IT Protection

HARISH CHANDER, *formerly Professor-in-Charge, Law Centre II, Faculty of Law, University of Delhi.*

India has emerged as a hub of the IT industry due to the phenomenal growth of the IT sector. However, this huge growth rate has brought with it the inevitable legal complications due to a switch over from paper-based commercial transactions to e-commerce and e-transactions. This book discusses the legal position of Information Technology (IT), e-commerce and business transaction on the cyberspace/Internet under the Information Technology (IT) Act in India.

Divided into five parts, Part I of the text deals with the role of the Internet, e-commerce and e-governance in the free market economy. Part II elaborates on various laws relating to electronic records and intellectual property rights with special reference to India. Efforts are being made internationally to rein in cyber crimes by introducing stringent laws, Part III deals with various rules and regulations which have been introduced to get rid of cyber crimes. Part IV is devoted to a discussion on various offences committed under the IT Act, penalties imposed on the offenders, and compensations awarded to the victims. Finally, Part V acquaints the students with the miscellaneous provisions of the IT Act.

This book is designed as text for postgraduate students of Law (LLM) and undergraduate and postgraduate students of Information Technology [B.Tech./M.Tech. (IT)] and for Master of Computer Applications (MCA) wherever it is offered as a course. Besides, it will prove handy for scholars and researchers working in the field of IT and Internet.

KEY FEATURES

- Includes Appendices on the role of electronic evidence, information technology rules, ministerial order on blocking websites, and the rules relating to the use of electronic records and digital signatures.
- Provides a comprehensive Table of Cases.
- Incorporates abbreviations of important legal terms used in the text.

Contents: Preface. Acknowledgements. Table of Cases. Abbreviations (Citation of Cases). Part I: Internet, E-commerce and E-governance with Reference to Free Market Economy—Understanding Computers, Internet and Cyber Laws. Conceptual Framework of E-commerce: E-governance. The Role of Electronic Signatures in E-commerce with Reference to Free Market Economy in India. Part II: Law Relating to Electronic Records and Intellectual Property Rights in India—Legal Aspects of Electronic Records/Digital Signatures. The Rules and Regulations of Certifying Authorities in India. Protection of Intellectual Property Rights in Cyberspace in India. Part III: International Efforts Relating to Cyberspace Laws and Cyber Crimes—International Efforts Related to Cyber-space Laws. Council of Europe (COE) Convention on Cyber Crimes. Part IV: Penalties, Compensation and Offences under the Cyberspace and Internet in India—Penalties, Compensation and Adjudication of Violations of Provisions of IT Act and Judicial Review. Some Important Offences under the Cyberspace Law and the Internet in India. Other Offences under the Information Technology Act in India. Part V: Miscellaneous Provisions of IT Act and Conclusions—The Role of Electronic Evidence and the Miscellaneous Provisions of the IT Act. Appendices—I: Information Technology Act as Amended up to 2008. II: The Information Technology (Certifying Authorities) Rules, 2000. III: Ministerial Order on Blocking of Websites. IV: The Information Technology (Use of Electronic Records and Digital Signatures) Rules, 2004. Bibliography. Index.

Latest Print 2016 / 288 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4570-6 / ₹ 325.00 / (e-book also available)

PACHGHARE

Cryptography and Information Security, 2nd ed.

V.K. PACHGHARE, *Associate Professor, Department of Computer Engineering and Information Technology, College of Engineering, Pune (An autonomous institute of Government of Maharashtra).*

This thoroughly revised and well-organised book is in its second edition, continues to present the principles, techniques, design and implementation of cryptography and information security algorithms, with a perfect balance in the presentation of theoretical and practical aspects. To provide the mathematical background required to understand the principles of cryptography and information security, the text explains all the relevant theorems such as Fermat's theorem and Euler's theorem. The book gives a clear analysis of various encryption methods and cipher techniques. In addition, various security measures, for example, firewalls and virtual private network, and web security, are also discussed.

This edition includes the topics with new innovations and improvements in the field of cryptography and information security in a substantial and comprehensive way. In this edition, the effort is taken to improve the pedagogy and user friendliness. It incorporates many solved numerical problems to clarify the various concepts and different algorithms and also includes MCQs with their answers in each chapter.

The book is intended for the undergraduate and post-graduate students of computer science and engineering (B.Tech./M.Tech.), undergraduate and postgraduate students of computer science (B.Sc./M.Sc. Computer Science), and information technology (B.Sc./M.Sc. IT) and the students of Master of Computer Applications (MCA).

KEY FEATURES

- Covers the latest topic of computer forensics and the areas in which they can be applied.
- Gives algorithms with numerical explanations.
- Provides a large number of solved problems.

Contents: Preface. Acknowledgements. Introduction. Data Encryption Techniques. Data Encryption Standards. Advanced Encryption Standard. Symmetric Ciphers. Number Theory. Public Key Cryptosystems. Key Management. Authentication. Digital Signatures. Electronic Mail Security. IP Security. Web Security. Intrusion. Malicious Software. Firewall. Computer Forensics. Index.

Latest Print 2015 / 416 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5082-3 / ₹ 350.00 / (e-book also available)

PATEL

Information Security: Theory and Practice

DHIREN R. PATEL, *Professor of Computer Engineering at National Institute of Technology, Surat (India).*

This book offers a comprehensive introduction to the fundamental aspects of Information Security (including Web, Networked World, Systems, Applications, and Communication Channels). Security is also an essential part of e-business strategy (including protecting critical infrastructures that depend on information systems) and hence information security in the enterprise (Government, Industry, Academia, and Society) and over networks has become the primary concern. The book provides the readers with a thorough understanding of how information can be protected throughout computer networks.

The concepts related to the main objectives of computer and information security systems, namely confidentiality, data integrity, authentication (entity and data origin), access control, and non-repudiation have been elucidated, providing a sound foundation in the principles of cryptography and network security. The book provides a detailed treatment of design principles of classical and modern cryptosystems through an elaborate study of cryptographic techniques, algorithms, and protocols. It covers all areas of security—using Symmetric key and Public key cryptography, hash functions, authentication techniques, biometric techniques, and steganography. Besides, techniques such as Secure Socket Layer (SSL), Firewalls, IPSec for Web security and network security are addressed as well to complete the security frame-work of the Internet. Finally, the author demonstrates how an online voting system can be built, showcasing information security techniques, for societal benefits.

Information Security: Theory and Practice is intended as a textbook for a one-semester course in Information Security/Network Security and Cryptography for B.E./B. Tech students of Computer Science and Engineering and Information Technology.

Contents: Preface. Overview of Information Security and Cryptography. Classical Encryption Methods. Confidentiality: Symmetric Key Cryptography. Information Hiding: Steganography. Confidentiality: Public Key Cryptography. Data Integrity: Cryptographic Hash Functions. Authentication. Authentication/Identification: Biometrics. Virus and Malware. Web and Network Security: SSL and IPSec. E-Voting: Online (Internet-based) Electronic Voting Systems. Glossary. References. Index.

Latest Print 2010 / 312 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3351-2 / ₹ 295.00

SINGH

Network Security and Management, 3rd ed.

BRIJENDRA SINGH, *Professor and Head, Department of Computer Science, University of Lucknow, Lucknow.*

Written in an easy-to-understand style, this textbook, now in its third edition, continues to discuss in detail important concepts and major developments in network security and management. It is designed for a one-semester course for undergraduate students of Computer

Science, Information Technology, and undergraduate and postgraduate students of Computer Applications.

Students are first exposed to network security principles, organizational policy and security infrastructure, and then drawn into some of the deeper issues of cryptographic algorithms and protocols underlying network security applications. Encryption methods, secret key and public key cryptography, digital signature and other security mechanisms are emphasized. Smart card, biometrics, virtual private networks, trusted operating systems, pretty good privacy, database security, and intrusion detection systems are comprehensively covered. An in-depth analysis of technical issues involved in security management, risk management and security and law is presented.

In the third edition, two new chapters—one on **Information Systems Security** and the other on **Web Security**—and many new sections such as digital signature, Kerberos, public key infrastructure, software security and electronic mail security have been included. Additional matter has also been added in many existing sections.

KEY FEATURES

- Extensive use of block diagrams throughout helps explain and clarify the concepts discussed.
- About 250 questions and answers at the end of the book facilitate fruitful revision of the topics covered.
- Includes a glossary of important terms.

Contents: Preface. Introduction. Organizational Policy and Security. Security Infrastructure. Cryptography. Network Fundamentals. Hardware and Software Security. Database Security. Information Systems Security. Intrusion Detection Systems. Network Security. Wireless Security. Web Security. Network Management. Security Management. Risk Management and Incident Management. Security and Law. Internet Governance and Electronic Mail Policy. Security of Internet Banking System. Appendices—A: Internet Standards and the Internet Society. B: Abbreviations and Acronyms. C: Questions and Answers. D: Glossary. Bibliography. Index.

Latest Print 2012 / 420 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4497-6 / ₹ 325.00 / (e-book also available)

STRAUB, GOODMAN & BASKERVILLE (Eds.)

Information Security: Policy, Processes and Practices

DETMAR W. STRAUB, SEYMOUR GOODMAN AND RICHARD L. BASKERVILLE (Eds.).

With the increased use of information system infrastructures and the Internet by people our societies are being subject to a great variety of information-related risks. Also in many rapidly developing parts of the world life is becoming dependent on multiple, complex and interrelated information technologies. Therefore, we need to design organizational processes and build information systems encapsulating and securing these technologies in a trustworthy manner.

With the above consideration in the background, this volume in the **Advances in Management Information Systems** series covers the managerial landscape of information security. It deals with how organizations and nations organize their information security policies and efforts. It also covers how to strategize and implement security with a special focus on emerging technologies. It highlights the wealth of security technologies, and also indicates that the problem is not a lack of technology but rather its intelligent application.

Contents: Part I: The Terrain of Information Security—Flaming the Information Security Process in Modern Society. Part II: Security Processes for Organizational Information Systems. Information Systems Security Strategy: A Process View. IT Governance and Organizational Design for Security Management. Information System Risk Assessment and Documentation. Strategic Information Security Risk Management. Security Policy: From Design to Maintenance. Business Continuity Planning and the Protection of Informational Assets. Part III. Processes for Securing the Extra-Organizational Setting—Information Security Policy in the U.S. National Context. The Internaitonal Landscape of Cyber Security. Part IV: Forces and Research Leading to Future Information Security Processes—Emerging Ubiquitous Computing Technologies and Security Management Strategy. Promising Future Research in InfoSec.

Latest Print 2011 / 300 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3745-9 / ₹ 350.00

Information Technology

BANSAL

Computing for Management

VEENA BANSAL, *Assistant Professor in the Department of Industrial and Management Engineering, Indian Institute of Technology Kanpur.*

This concise yet accessible introduction to database technology is written for use in Database Management System courses, particularly for students of management.

In simple, straightforward terms the book provides reader-friendly explanations of the basic concepts which underpin the technology of Relational Database Management Systems (RDBMS). A running example illustrates the core concepts involved—from analysis to implementation—in the design of a simple RDBMS project. The book also features adequate treatment of the database language SQL.

Students are also introduced to the fundamentals and use of the object-oriented methods of the Java programming language to write simple, web-enabled database applications. A number of programming examples are included to teach database access through the JDBC classes and Oracle server.

The book concludes with basic material on how

to configure computers and networks for database interactions.

Contents: Preface. UNIT I: Relational Database Management Systems—Relational Database Management Systems. Entity Relationship Model. Relational Model. Relational Database Design Using ER-to-Relational Mapping. The SQL. UNIT II: Java—Java. Control Structures. Methods. Arrays, Characters, Strings and String Buffers. Data Structures. Input/Output. UNIT III: Web Enabling the Database—Database Revisited. UNIT IV: Introduction to Computers—Computer Organization. Networks. Bibliography. Index.

Latest Print 2006 / 324 pp. / 17.8 × 23.5 cm
ISBN-81-203-2673-3 / ₹ 250.00 / (e-book also available)

KELKAR

Information Technology Project Management: A Concise Study, 3rd ed.

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering and the Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay.*

This book, in its third edition, is aimed at emphasizing the fundamental concepts associated with IT Project Management from a balanced perspective of theory and practice. By presenting the information in an abstracted form, this text guides the students through all phases of project life cycle, i.e. initiation, planning, execution, monitoring and control, and closure.

Besides such general management activities, this book comprehensively deals with all critical dimensions of project such as scope, time, cost, quality, human resources, communication, risk, procurement, and integrations in order to enhance the reader's understanding of technical competencies required in project management.

NEW TO THIS EDITION

Incorporates all the changes brought about in PMBOK 2008 (Fourth Edition) and ISO9000:2008

Though the basic structure of this book remains the same, several chapters have been modified and reorganized according to the latest trends

This book is well-suited for an academic course (one semester) on IT project management or for conducting an equivalent training programme for IT professionals. IT project managers, who are aspiring to get appropriate certification course based on PMBOK 2008 (Fourth Edition) from PMI, USA, will be greatly benefited by reading this book. Besides, this book will be equally useful for the software professionals who wish to grasp the essentials without attending a formal instructional course on the subject.

Contents: Preface. Abbreviations. Project Management Backdrop. Quality and Quality Management Systems. Project Management Processes and PMIS. Pre-project Scenario. Project Initiation. Project Planning. Project Execution, Monitoring and Control. Project Closing and Beyond. Project Management Summary by Knowledge Areas. **Appendices—**A: IT Around Us. B: Capacity Planning. C: Software Development Orientation. D: Estimation Techniques. E: Quality Control. F: Metrics and Measurements. G: Configuration Management. H: Human Resources Management. I: Project Structure and Roles. Suggested Reading.

Latest Print 2014 / 864 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4273-6 / ₹ 525.00 / (e-book also available)

NAIR & CHANDRA

Informatics

VIJAYAKUMARAN NAIR K. *has been Associate Professor in the Department of Zoology, Mar Ivanios College, Thiruvananthapuram, Kerala.*
VINOD CHANDRA S.S., *Director, Computer Centre, University of Kerala, Thiruvananthapuram.*

The book provides an overview of the basic concepts of informatics. Dealing with the concerns and issues of digital technology, the text has been written with the objective of introducing students with the tools and applications of information technology, highlighting its use by the digital society. It creates awareness on the nature of emerging digital knowledge society and social issues.

Organized into six chapters, the book explains the fundamentals of informatics, besides sharing and analyzing the consequences of rapid computerization. Beginning with an overview of information technology explaining evolution of computers, computer classification, computer hardware and networking, the book moves to the Internet which is considered as a knowledge repository. It then explains IPR, copyright, patents and software license agreement. The book also highlights and discusses social informatics, e-Governance, applications of informatics in various subject areas and futuristic IT.

The book is primarily intended as a text for undergraduate and postgraduate students of various disciplines wherein 'Informatics' is prescribed as a core or foundation course. The book will also be of immense use to general readers who are interested in knowing the applications of information technology.

KEY FEATURES

1. Provides updated information as per the course curriculum of many universities.
2. Includes labeled and immaculate illustrations for clear understanding of the concepts.
3. Chapter-end review questions to reinforce to concepts understanding and to help students prepare for examinations.
4. Presents an extensive glossary of technical terms.

Contents: Preface. Overview of Information Technology. Knowledge Skills. Social Informatics. IT Applications. Specific Areas in Informatics. Futuristic IT. Index.

Latest Print 2014 / 240 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4988-9 / ₹ 250.00 / (e-book also available)

RAJARAMAN

Introduction to Information Technology, 2nd ed.

V. RAJARAMAN, *Honorary Professor in the Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

This textbook is designed for a first course in Information Technology (IT), offered as core course for all undergraduate university students. It will also benefit students preparing for DOEACC (O level), polytechnic students, and professional courses such as CA. As IT is a rapidly advancing technology, the main objective of this book is to emphasize reasonably stable fundamental concepts on which this technology is built.

The book is broadly organized into three parts. The first part describes the hardware devices used for acquisition of numerical, graphical, audio and video data and their representation in binary form. The second part describes the methods of storing, processing and disseminating data. The final part describes both the systems and application software. Applications include word processors, spread-sheets, multimedia processing, some uses of the Internet, business processes and e-commerce. The concluding chapter presents a discussion of social networks, social impacts of Information Technology and career opportunities in the field of IT.

KEY FEATURES

- Provides comprehensive coverage of IT from first principles
- Describes a large number of important applications of IT
- Explains acquisition, storage, organization, processing, display, and dissemination of multimedia data
- Covers business data processing, the Internet and World Wide Web, e-commerce, social impacts of IT and job opportunities in IT enabled services
- Every chapter begins with a statement of learning goals and ends with a comprehensive summary.

Contents: Preface. Data and Information. Acquisition of Numbers and Textual Data. Acquiring Graphical Data. Acquiring Audio Data. Acquisition of Video. Data Storage. Central Processing Unit. Computer Networks. Output Devices. Computer Software. Data Organization. Processing Numerical Data. Processing and Displaying Textual Data. Processing Multimedia Data. Some Internet Applications. Business Information Systems. Electronic Commerce. Societal Impacts of Information Technology. References. Index.

Latest Print 2016 / 384 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4731-1 / ₹ 325.00 / (e-book also available)

RAY & ACHARYA

Information Technology: Principles and Applications

AJOY KUMAR RAY, *Professor at Department of Electronics and Electrical Communication Engineering, IIT Kharagpur.*
TINKU ACHARYA, *Senior Executive Vice President and Chief Science Officer of Avisere Inc., Tucson, Arizona, USA. He is also an Adjunct Professor in the Department of Electrical Engineering, Arizona State University, USA.*

This comprehensive yet accessible text provides a good introduction to the fundamental concepts of Information Technology and skillfully elaborates on their applications, covering in the process the entire spectrum of IT related topics.

Organized into three parts, the book offers an insightful analysis of the subject, explaining the concepts through suitable illustrations. Part I covers basic issues and concepts of Internet and the techniques of acquiring, storing, structuring and managing information that may involve images, text files and video data. The reader is exposed to both centralized and distributed database systems. Part II deals with the core topics in developing information systems which are based on audio and speech compression, multimedia communication techniques, and soft computing for analysis and interpretation of data. Part III focusses on a number of application areas—as remote sensing, telemedicine, e-commerce, cybermediary and rural development—besides the traditional engineering disciplines, highlighting their social impacts.

The book is intended for undergraduate and postgraduate students of information technology, computer science as well as electronics and electrical communication engineering. It should also serve as an excellent reference for professionals in the IT field.

DISTINGUISHING FEATURES

- Discusses in detail the theoretical basis behind a web graph.
- Deals with security issues of computer networks and their implications in an easy-to-understand manner.
- Contains more than 30 projects (with useful hints) that students of various IT courses would find interesting to work on.
- Three chapters are exclusively devoted to different aspects of database management and data mining systems.

Contents: Foreword 1. Foreword 2. Preface. Acknowledgements. Contributors. Part I: Core Concepts and Issues—Introduction. Database Management Systems. Role of Telecommunication in Information Technology. Basics of the Internet. Overview of Present Day Networking Technologies. Principles of Visual Information Analysis. Information Technology for Multimedia Communication. Part II: Development of Information Systems—Graph-Theoretic Structure of the World Wide Web. Principles of Image Compression. Text Compression.

Content-based Multimedia Analysis and Retrieval. Speech and Audio Compression. All-Optical Networking and Evolution of Network Infrastructure: From Electrical to Optical. Computer Security Threats and Countermeasures. Image Databases. Principles and Applications of Soft Computing. An Introduction to Clustering Techniques. Part III: Important Application Areas of IT—Bioinformatics: Issues and Challenges. Information Technology in Healthcare and Telemedicine. An Overview of Remote Sensing and GIS Techniques. E-commerce: A Source of Competitive Advantage in Global Market. An Investigation into the Emerging 'Cybermediary' Concept. Industrial Information Technology. Colour Image Processing and Analysis. Information Technology in Mining and Electrical Load Forecasting. Information Processing from Document Images. Information Technology for Rural Development. Appendix—Projects for IT Courses. Index.

Latest Print 2011 / 628 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2184-7 / ₹ 550.00

SINHA & SINHA

Information Technology: Theory and Practice

PRADEEP K. SINHA, *Vice Chancellor and Director of the International Institute of Information Technology, Naya Raipur (IIIT-NR).*

PRITI SINHA *has been largely involved in the area of Computer Applications. She is actively involved in writing textbooks and their translations.*

This book is based on the premise that knowledge of Information Technology (IT) is essential today for people in every walk of life and all types of profession. It is designed to impart a unified body of knowledge and practice in IT to its readers. Readers can apply this knowledge in innovative ways for various strategic advantages such as increasing productivity, improving quality of products and services, problem solving, decision making, and improving their own and others living standards.

The textbook takes a practical approach to introduce the various components of IT to its readers. While doing so, it demonstrates how IT is being used in modern enterprises by various departments to carry out their activities with greater ease, speed, and accuracy than before. It also introduces several new business models and practices made possible due to IT that enterprises are now using for better profitability. In the process, the book provides to its readers a sound foundation of various components and aspects of IT. It also introduces to its readers several latest concepts and technologies in IT such as Wearable computers, Green computing, Cloud computing, Speech recognition and voice response systems, 4G and 5G networks, Big data analytics, Data science, Web 3.0, IPv6, 3D printing, Enterprise 2.0 organization, etc.

Complete with numerous illustrative diagrams, practical examples, chapter summaries, end-of-chapter questions, glossary of important terms, the book is designed to serve as a textbook for courses on IT, IS, MIS, Business Computing, and other similar courses taught in various education programs.

The instructors manual is also available for instructors.

Contents: Preface. Acknowledgements. Information Technology and Digital Economy. Information Systems. Role of IT in Various Functional Areas of an Organization. Computer Systems. Computer Hardware. Computer Software. IT Networks. Database Systems. Business Intelligence and Decision Support Systems. The Internet, World Wide Web and Internet of Things. Cyber Security. Enterprise Systems: ERP, SCM and CRM. IT Strategies for Business Continuity and Growth. Index.

Latest Print 2016 / 448 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5224-7 / ₹ 395.00 / (e-book also available)

Internet and Web Technology

ANTONIOU, et al.

Semantic Web Primer, A, 3rd ed.

GRIGORIS ANTONIOU, *Professor, Institute for Computer Science, FORTH (Foundation for Research and Technology-Hellas), Heraklion, Greece.*

PAUL GROTH, *Assistant Professor, Knowledge Representation and Reasoning Group, Department of Computer Science, VU University, Amsterdam.*

FRANK VAN HARMELEN, *Professor, Knowledge Representation and Reasoning Group, Department of Computer Science, VU University, Amsterdam.*

RINKE HOEKSTRA, *Postdoctoral Researcher, Knowledge Representation and Reasoning Group, Department of Computer Science, VU University, Amsterdam.*

The development of the Semantic Web, with machine-readable content, has the potential to revolutionize the World Wide Web and its uses. *A Semantic Web Primer* is an introduction and guide to this still emerging field, describing its key ideas, languages, and technologies. The book provides a systematic treatment of the different languages (XML, RDF, OWL, and rules) and technologies (explicit metadata, ontologies, and logic and inference) that are central to Semantic Web development as well as such crucial related topics as ontology engineering and application scenarios.

This substantially revised and updated second edition reflects recent developments in the field, covering new application areas and tools. The new material includes a discussion of such topics as SPARQL as the RDF query language; OWL DLP and its interesting practical and theoretical properties; the SWRL language (in the chapter on rules); OWL-S (on which the discussion of Web services is now based). The new final chapter considers the state-of-the-art of the field today, captures ongoing discussions, and outlines the most challenging issues facing the Semantic Web in the future. Suitable for use as a textbook or for self-study by professionals, it concentrates on undergraduate-level fundamental concepts and techniques that will enable readers to

proceed with building applications on their own and includes exercises, project descriptions, and annotated references to relevant online materials.

"This book is essential reading for anyone who wishes to learn about the Semantic Web. By gathering the fundamental topics into a single volume, it spares the novice from having to read a dozen dense technical specifications. I have used the first edition in my Semantic Web course with much success."

—**Jeff Heflin**, Associate Professor Department of Computer Science and Engineering, Lehigh University

"This book provides a solid overview of the various core subjects that constitute the rapidly evolving Semantic Web discipline. While keeping most of the core concepts as presented in the first edition, the second edition contains valuable language updates, such as coverage of SPARQL, OWL DLP, SWRL, and OWL-S. The book truly provides a comprehensive view of the Semantic Web discipline and has all the ingredients that will help an instructor in planning, designing, and delivering the lectures for a graduate course on the subject."

—**Isabel Cruz**, Department of Computer Science, University of Illinois, Chicago

Contents: List of Figures. Series Foreword. The Semantic Web Vision. Describing Web Resources: RDF. Querying the Semantic Web. Web Ontology Language: OWL2. Logic and Inference: Rules. Applications. Ontology Engineering. Conclusion. A. XML Basics. Index.

Latest Print 2015 / 288 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-5103-5 / ₹ 450.00

BANERJEE

Internetworking Technologies: An Engineering Perspective

RAHUL BANERJEE *is with the Computer Science and Information Systems Group at BITS, Pilani.*

Designed as an advanced text on internetworking technologies for senior undergraduate/graduate students of computer science, this unique book provides an introduction to the key concepts related to front line areas of internetwork-specific research and development. The text would also be highly useful to professionals, who wish to keep abreast of various state-of-the-art technologies in their fields of research.

SALIENT FEATURES

- Offers a simple yet clear view of implications of design-time choices on the evolution of internetwork protocols, design and architectures.
- Allows a unified treatment of complex subjects by means of identification of common threads.
- Design exercises at the end of relevant chapters extend the coverage of the text by addressing real-world design issues and developing a fuller view of the domain.
- Focusses on the IPv6 and design and implementation issues specific to the next-generation internetworking using IPv6 as their base technology.
- Proposed solutions to the IPv6 quality-of-service specification problems, discussed in the appendices, provide an insight into several approaches of contemporary significance.

Supporting website (http://www.bits-pilani.ac.in/~rahul/) maintained by the author provides several supporting tools for the readers.

Contents: Preface. Part I: Fundamentals of Internetworking, Multimedia, Compression and Intelligent Agent Technology—Introductory Concepts in Internetworking. Multimedia Internetworking Technology. Data Compression Technology. Intelligent Agent Technology in Internetworking. Part II: Internetworking System Architectures—The TCP/IPv6 Internetworking Architecture. Internetworking Routing Architectures. Internetwork Management Architectures. Internet Security Architectures. Part III: Internetworking Application Architectures—Internetwork-based Video-on-Demand Architectures. Internetwork-based Digital Library Architectures. Internet-commerce Architectures. Internet Programming. Appendices. Bibliography. Index.

Latest Print 2013 / 264 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-2185-4 / ₹ 225.00

CHOPRA

Web Engineering

RAJIV CHOPRA, *Assistant Professor in the Department of Computer Science and Engineering/Information Technology at Guru Tegh Bahadur Institute of Technology (GTBIT), GGSIPU Delhi.*

Written in an easy-to-grasp language, the book brings to light the various topics pertaining to Web engineering at one place in a comprehensive manner. The text, organized in eleven chapters, enables its readers to analyze, model, design, code, test and maintain their Web sites. Through its systematic presentation of topics, i.e., from basic level to advanced level, the book apprises the readers with the finer points of the various phases of Web development life cycle like Web analysis, Web design, Web coding (Web technologies), Web testing and Web maintenance.

The book is adaptive enough for practical implementation of the concepts, thereby allowing its readers to avoid or overcome hacking, to master client-side and server-side programming and to develop good-quality Web applications. Using explicit descriptions and scripting languages like VBScript, JavaScript and much more, this book is a must-have book for all those who are associated with the field of Web engineering.

This book is chiefly intended for the undergraduate and postgraduate students of Computer Science and Engineering/Information Technology. It is also of immense use for the students of M.Sc. in Computer Science and MCA.

HIGHLIGHTS OF THE BOOK

- Inclusion of *multiple choice questions* (*with answers*) and *solved conceptual questions* at the end of each chapter helps the students from examination point-of-view.
- *Chapter-end review questions* check the grasping power of the students and help in developing their skills.
- Adequate number of *solved programming examples* and *case tools* are included in the book, which consider Web engineering as an umbrella activity.
- *Notes* are given in between the text to highlight the important points for quick reference.
- Ample figures and tables are given to support the concepts explained.
- Enclosure of *question bank, glossary*, *bibliography* and *sample papers* makes the book replete with features.

Contents: Preface. Acknowledgements. An Introduction to Web Engineering. Requirements Engineering for Web Applications. Technologies for Web Applications. Server-Side Programming and Technologies. Web Application Architecture. Modeling Web Applications. Web Application Design. Testing Web Applications. Web Project Management. Security for Web Applications. Web 2.0 and Web 3.0. Question Bank. Glossary. Bibliography. Sample Papers. Index.

Latest Print 2016 / 352 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5254-4 / ₹ 395.00 / (e-book also available)

DAS GUPTA & MONDAL

Developing Web Applications Using ASP. NET and Oracle, 2nd ed. (with CD-ROM)

PRANAB KUMAR DAS GUPTA, *Senior Scientist in Defence Research and Development Organization (DRDO). Presently he is Additional Director at Proof and Experimental Establishment, Chandipur, Balasore, Odisha.*

RAMPROSAD MONDAL *is a Microsoft Certified Technology Specialist (MCTS) specialized in ASP.NET. He is a corporate trainer in Microsoft Technologies.*

This thoroughly revised and updated Second Edition provides an in-depth information that readers need to fully exploit the functionality of Microsoft's ASP.NET framework and Oracle's Database Server to build dynamic and interactive web applications that can handle a large number of simultaneous users.

The book provides readers with information pertaining to ASP.NET 4.0 architecture; its installation, web controls, master pages, themes, state management, AJAX and deployment of web applications. It includes the Hypertext Markup Language (HTML) and the Cascading Style Sheet (CSS), which are used for designing the web pages. In order to facilitate an easy learning of intricate concepts involved in the development of data-driven dynamic web applications, the book provides a detailed treatment on the Oracle Structured Query Language (SQL) and Oracle PL/SQL. It also introduces the distributed architecture and discusses how ASP.NET framework, Oracle database and Internet Information Services (IIS) can be used to develop and deploy the solutions for distributed environment.

After going through this book, the students/ professionals will be able to:

- Develop data-driven web applications using Oracle as back-end.
- Present data through data-bound controls.
- Manage consistent look and fill using master pages and themes.
- Develop stateful e-commerce applications.
- Develop rich interactive web applications using AJAX.
- Embed Microsoft Reports to produce dynamic printable output.
- Debug, deploy and secure web applications.

The book is intended to serve as a guide for the undergraduate and postgraduate students of Computer Science, Computer Applications and Information Technology. Besides, it would also be useful to IT professionals to enhance their technical skills.

KEY FEATURES

- More than 100 worked-out examples and 20 assignments.
- Around 200 objective and subjective type questions.
- Two real-world case studies with solutions.
- Project development work following the complete SDLC process model.
- Three appendices, namely Integrating Microsoft Reports in ASP.NET, Installation of Visual Studio 2010, and Answers to Chapter-end Practice Questions.

NEW TO THE SECOND EDITION

- Provides information for designing and developing the web applications using Visual Studio.
- Includes two new chapters—one on Master Pages, Themes and State Management and the other on AJAX in ASP.NET and Web Deployment of Application.
- Includes the new features of ASP.NET 4.0.
- Gives additional questions in each chapter.
- Includes a CD-ROM, which contains programs (tested with ASP.NET 4.0 and compatible with Oracle 10g) corresponding to all the examples, assignments, case studies and the project included in the book. The installation processes of programs are described in the relevant chapters of the book.

Contents: Preface. Acknowledgements. Introduction to ASP.NET and Distributed Architecture. Hypertext Markup Language. Structured Query Language Specific to ASP. NET. Oracle PL/SQL Specific to ASP.NET. Web Controls. Validation, Menu, Cookies and Login Controls. Data Controls. Master Pages, Themes and State Management. AJAX in ASP.NET and Web Deployment of Application. Case Studies. Project: System Requirement Specification. Project: Designing and Coding. Appendices—A: Integrating Microsoft Reports in ASP.NET. B: Installation

of Visual Studio 2010. C: Answers to Chapter-end Practice Questions. Index.

Latest Print 2013 / 464 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4732-8 / ₹ 525.00 / (e-book also available)

GOPALAN & AKILANDESWARI

Web Technology: A Developer's Perspective, 2nd ed.

N.P. GOPALAN, *Professor in the Department of Computer Applications, National Institute of Technology, Tiruchirapalli.*

J. AKILANDESWARI, *Professor and Head, Department of Information Technology, Sona College of Technology, Salem.*

This well-received book, now in its second edition, incorporates a new chapter on PHP as Chapter 13 based on the readers' demand in todays world PHP which is an important web programming technology.

This text provides students with a comprehensible introduction to the programming and scripting languages currently used to create Web sites and Web applications—the main aim being to teach the programming concepts of various Web technologies and the fundamentals needed to program on the Internet.

The book emphasises the underlying fundamentals of Web page development and prepares students to build real-world, industrial strength Web-based applications, and use a wide variety of Web development tools effectively and efficiently. Students are introduced to the concepts of Internet Protocols, Java networking, JavaScript, VBScript and PHP. The material presented on Java network programming contains an elaborate description with examples to help the reader clearly understand the networking concepts.

The book is intended as a text for students of Computer Science and Engineering, Information Technology, and Master of Computer Applications.

KEY FEATURES

- Presents well-designed material on HTML, DHTML, XML and PHP with many practical exercises.
- Explains the development of servlets with simple examples.
- Explores the programming features of JSPs.
- Introduces the elements of ASPs with worked-out exercises.
- Includes Review Questions and Objective Type Questions at the end of each chapter.

Contents: Preface. Introduction. Internet Protocols. Java Network Programming. HTML. JavaScript. VBScript. Dynamic HTML (DHTML). Extensible Mark-up Language (XML). Common Gateway Interface (CGI). Servlets. Java Server Pages (JSP). Active Server Pages (ASP). PHP. Index.

Latest Print 2016 / 348 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5006-9 / ₹ 325.00 / (e-book also available)

GOPALAN & SIVASELVAN

TCP/IP Illustrated

N.P. GOPALAN, *Professor, Department of Computer Applications, National Institute of Technology, Tiruchirappalli, Tamil Nadu.*

B. SIVASELVAN, *Assistant Professor, Indian Institute of Information Technology, Design and Manufacturing Kancheepuram, IIT Madras Campus, Chennai.*

The TCP/IP technology has evolved over the years and undergone substantial improvements to meet the demands of modern high-speed network technologies. These demands involve the handling of increased traffic, providing better and efficient services, and implementing foolproof security measures for authentic and safe communication.

Offering clear explanations of underlying issues, this book provides an accessible introduction the basic principles of the Internet and its accompanying TCP/IP protocol suit. It discusses a wide range of topics, including:

- Principles and applications of TCP/IP and other relevant protocols
- Coordination of multiple interconnected physical networks and protocols
- Routing and its specific components—Internet addressing, protocol layering and implementation
- Client-server model of communication
- Internet security—issues and concepts

This textbook is designed for students of BE/BTech pursuing courses in Computer Science and Engineering, Information Technology, as well as for students of computer applications (BCA and MCA). It can also be a valuable reference for ME/MTech students of Computer Science and Engineering and Information Technology, specializing in computer networks and network programming.

Contents: Preface. Acknowledgements. Introduction. Network Technologies Revisited. Internet Architecture and Concepts. Address Resolution Protocols. Reverse Address Resolution Protocol (RARP). Connectionless Datagram. Datagram Routing. Internet Control Message Protocol (ICMP). Subnet and Classless Addressing Principles. Protocol Organization. User Datagram Protocol (UDP). Transmission Control Protocol—Reliable Services. Routing Algorithms. Exterior Gateway Protocols for Routing. Autonomous Systems Routing. Multicasting Over the Internet. TCP/IP over ATM Networks. Mobile IP. Private Network Connections—VPN and NAT. Client Server Interaction. Socket Interface. Automatic Configuration and Boot Strapping. Domain Name System (DNS). Telnet and Remote Login Applications. File Transfer Protocol (FTP). Electronic Mail (E-mail). World Wide Web (WWW) and HTTP. Voice and Video Over IP (VOIP). Internet Security. IPv6—The Future of TCP/IP. List of Networking Terms. Bibliography. Index.

Latest Print 2008 / 308 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3283-6 / ₹ 250.00 / (e-book also available)

HARWANI

JavaServer Faces: A Practical Approach for Beginners

B.M. HARWANI, *Managing Director, Microchip Computer Education (MCE), Ajmer.*

Based on a standard web-application framework, JavaServer Faces (JSF), this book provides a step-by-step practical approach to understand the basic controls of JSF and its real life applications. It includes examples which help to apply different techniques provided by JSF such as tags, converters and validators in real life situations.

The book begins with an introduction to JavaServer Faces architecture, its lifecycle, its main components and the installation steps of the softwares required to run and implement JSF. Further it covers expression language and its use to access Managed Bean attributes, and a practical usage of different components like text field, text area, command button, menu, checkbox and so on. Every component is explained with a program as they act as a building block for any web application. Finally it discusses all the steps required in creating two custom components: label component and email component. The creation and deployment of RichFaces and Ajax4Jsf application are also explained step-by-step.

KEY FEATURES

- Provides the use of latest available IDE: NetBeans IDE 6.0/6.1 for making JSF based web application.
- Gives step-by-step approach for creating custom converters, validators and components.
- Elaborates the use of Ajax and its advantages in web applications.

Primarily intended for the software professionals, this book will also be useful to the students of computer science and engineering (B.Tech and M.Tech), and master of computer applications (MCA).

Contents: Preface. JavaServer Faces: An Overview. Setting Up JSF. Expression Language. JSF HTML Tags. Converters. Validation. Event Handling. Page Navigation. Using NetBeans IDE. Creating Custom Component. AJAX with RichFaces Using JBoss. Index.

Latest Print 2012 / 360 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3709-1 / ₹ 325.00

HARWANI

Practical JSF Project Using NetBeans

B.M. HARWANI, *Managing Director, Microchip Computer Education (MCE), Ajmer.*

Java Server Faces (JSF) is a new exciting technology used for developing web applications. It supports Rapid Application Development (RAD) style of application development and provides APIs and tag libraries to build web-based user interfaces. NetBeans provides a list of controls, properties, menus, database access etc. to enable web developers to develop powerful Java-based applications with ease.

This compact book explains how to use different components of JSF in NetBeans IDE in developing a web application. It describes the techniques of data storage and retrieval using MySQL database tables, session handling and navigation between web pages. In addition, this text presents a real-life web application 'Shopping Cart' project and its functions in a step-by-step manner to help the readers understand the concepts discussed.

The book is specially suitable for students of computer science, computer applications, computer science and engineering, and information and communication technology. Besides, it can serve the needs of students of all other engineering disciplines for their project/ thesis work related to Java-based applications. The text is also useful for software developers, trainees and professionals.

KEY FEATURES

- Screen shots are included for each step.
- Coding used in different modules is explained in detail.
- Designing of the back-end database is described using MySQL server.

Contents: Preface. Getting Started. Introduction to NetBeans IDE. Shopping Cart Project. Sample Output. Creating Tables. Creating Heading and Menu Fragments. All Products List Module. Searching Items and Show Cart Module. Registration Module. Login Module. Order Form Module. Startup Module. Index.

Latest Print 2009 / 336 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3856-2 / ₹ 295.00 / (e-book also available)

JAMES

Internet, The: A User's Guide, 2nd ed.

K.L. JAMES, *Technical Officer, Computer Centre, University of Kerala, Thiruvananthapuram.*

In this new era, the Internet has changed the ways of doing business activities, learning methods, teaching strategy, communication styles and social networking. This book attempts to answer and solve all the mysteries entangled with the Web world.

Now in its second edition, the book discusses all the updated topics related to the Internet. Beginning with an overview of the Internet, the book sails through the evolution and growth of the Internet, its working, hardware and software requirements, protocols used, e-mail techniques, various Internet security threats and the methods of using and configuring different security solutions, file transfer methods and several other Internet services with all the details illustrated through live screenshots.

Presented in a simple yet engaging style and cogent language, this book will be useful for any course introducing students to the Internet or where the Internet is a part of the curriculum. It will also immensely benefit all those who are interested in developing the necessary skills to use the Internet.

WHAT IS NEW TO THIS EDITION

- Chapters on Internet Telephony and Web Conferencing, Blogs and Social Networking
- Inclusion of topics such as Web 2.0, Web 3.0 technologies, IPv6, VoIP, Wikis, SMS and Blogs
- Detailed features of the newest Internet tools and software applications including open-source, free and cross-platform types
- Comprehensive and updated Internet dictionary acquainting with the Web world terminologies

Contents: Preface. The Internet: An Overview. Evolution and Growth of the Internet. Working of the Internet. Hardware and Software Requirements. Getting Online. Electronic Mail. Getting Free E-Mail Address. World Wide Web. Building Websites. Making Dynamic Web Pages. Hosting and Promoting Websites. Electronic Commerce. Newsgroups and News Feeds. Internet Chatting and Messaging. Internet Telephony and Web Conferencing. Blogs and Social Networking. File Transfer, Gopher, Remote Working. Internet Security. The Internet and the Society. Super Tools for Better Computing. The Internet Dictionary. Appendix. Index.

Latest Print 2010 / 456 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4029-9 / ₹ 295.00 / (e-book also available)

पंत / पंत

इंटरनेट—एक जादुई चिराग़

मधु पंत, पिछले 14 वर्षों से राष्ट्रीय बाल भवन में निदेशक के पद पर कार्यरत हैं।

एम.एम. पंत, एक प्रसिद्ध कम्प्यूटर विज्ञ हैं जो 15 वर्षों तक इंदिरा गांधी राष्ट्रीय मुक्त विश्वविद्यालय में कम्प्यूटर विभाग के अध्यक्ष रहे।

'इंटरनेट—एक जादुई चिराग़' एक ऐसी पुस्तक है जो जनसाधारण को इंटरनेट की ओर आकर्षित करने के साथ–साथ बच्चों को ध्यान में रखकर भी लिखी गई है—विशेष रूप से हिंदी भाषी ग्रामीण बच्चों को। इस पुस्तक द्वारा तकनीकी और वैज्ञानिक तथ्यों को जीवन से जोड़कर उन्हें कविता व कहानी के माध्यम से बोधगम्य और रोचक रूप में प्रस्तुत करने का प्रयास किया गया है।

पुस्तक के मुख्य उद्देश्य हैं

- इंटरनेट के विषय में जानकारी रोचक रूप में प्रदान करना
- इंटरनेट के प्रति बच्चों व बड़ों में उत्सुकता और जिज्ञासा पैदाकर, उन्हें इंटरनेट के विषय में अधिक जानने और उसका प्रयोग करने की ओर प्रेरित करना
- इंटरनेट से जुड़ी कुछ विशेष तकनीकों से पाठक को अवगत कराना ताकि वह स्वयं भी इंटरनेट से जुड़ सके
- तकनीकी विषयों के प्रति मन में पूर्वाग्रहों को हटाकर उनकी ओर आकर्षित करना
- इंटरनेट से जुड़ी कुछ विशेष सुविधाओं—जैसे ई–मेल, फाइलों का स्थानांतरण, चैट रूम, वर्ल्ड वाइड वेब आदि—से अवगत कराने के बाद उनका प्रयोग करने के लिए प्रेरित करना।

विषय सूचीः प्राक्कथन। प्रस्तावना। पुस्तक का एक संक्षिप्त विवरण। कुछ अपनी बात। एक जादुई चिराग़—इंटरनेट। आख़िर यह इंटरनेट है क्या? कहानी इंटरनेट की। इंटरनेट परिवार। माउस और की–बोर्ड विवाद। मान न मान मैं तेरा मेहमान। पथों का जाल या इंद्रजाल। कैसे जानें अता–पता। कबूतर से कम्प्यूटर यानी ई–मेल। खुल जा सिम सिम। एक मुलाक़ात आधुनिक लाल बुझक्कड़ से। वर्ल्ड वाइड वेब (WWW) क्या है? चारों धाम वेब के नाम। साइबर ज्ञान–विज्ञान यात्रा। साइबर स्मारक यात्रा। साइबर तीर्थ यात्रा। जिन खोजा तिन पाइयां गहरे पानी पैठ। चलता फिरता इंटरनेट। सूरदास के मन की आंखें—इंटरनेट। न रहेगा बांस और न बजेगी बांसुरी। अब पछताए होत क्या जब चिड़िया चुग गई खेत। परिशिष्ट अ—कुछ आवश्यक जानकारियां। परिशिष्ट ब—कुछ तकनीकी जानकारियां।

Latest Print 2004 / 124 pp. / 20.0 × 25.0 cm
ISBN-81-203-2574-5 / ₹ 95.00

IT Management

DUBEY

IT Services Business Management: Concepts, Processes and Practices

SANJIVA SHANKAR DUBEY, *Professor (Adjunct) at BIMTECH Greater Noida.*

In IT Services, the businesses are managed with a customer-centric approach. This book, through various concepts, processes and stages, explores the need and framework of IT Services business, and how they are managed to deliver services par excellence.

The book comprehensively explains how ITSE (IT Services Enterprises) strategies are analyzed and formulated with the help of three-dimensional cube—customer-centricity, niche vs. end-to-end offering and disruptive innovation vs. gradual innovation. The book further teaches that a good marketing must start with an integrative vision of the ITS Enterprise, and reveals how a customer plays a dominant role in co-creating IT Services. It also details on the various stages of sales cycle called Sales funnel, and how the sales team manages the sales opportunity's progress.

The concluding chapters discuss the aspects needed for the survival and growth of the ITSE firms; the factors that propel growth—Demand, Quality of the business environment and Supply response of an enterprise. It also shows how the future of the IT Services depend on the combination of—Business environment, Information and Communication Technology (ICT) trends, IT Services business model trends and IT governance trends.

The book is well-supported with the diagrams and illustrations to explain the concepts clearly. The Review Questions are also incorporated to analyze the students' learning skills.

The book is intended for the postgraduate students of business administration, MCA and MSc (IT). Besides, the book will also be beneficial for the IT Services executives and managers.

Contents: Preface. IT Services Industry Landscape. IT Services Portfolio. IT Services Business Processes, Models and Functions. Strategic Foundation for IT Services Business. Marketing of IT Services.Business Development of IT Services. IT Services Selling. Delivery Management of IT Services. IT Services Quality Assurance. IT Services Enterprise: Measurement and Driving performance. Creating a Wining IT Services Team. Managing Knowledge, Innovation and Creating a Learning Organization. Managing IT Services Enterprise Growth. Future Trends in IT Services. Index.

Latest Print 2012 / 280 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4531-7 / ₹ 250.00 / (e-book also available)

DUBEY

IT Strategy and Management, 3rd ed.

SANJIVA SHANKAR DUBEY, *Professor (Adjunct) at BIMTECH Greater Noida.*

Visit https://www.linkedin.com/in/profsanjivaDubey to know more about the author.

IT Strategy and Management, in its third edition, has now become an essential compendium for management and technical students joining the workforce, and the young managers who are already in the business world. This is simply because businesses are becoming increasingly global, and they need a well laid out IT strategy and well-orchestrated IT management to meet increasing customer expectations and international competition. This concise yet comprehensive edition is designed to suit the needs of the students of MBA/PGDM/B.Tech/MCA and MSc (IT) for a course/paper on IT Strategy and Management.

This textbook aims to equip students with IT strategy, planning and management with latest management frameworks, researched principles and proven best practices. It gives an in-depth study of managing IT as a strategic resource, and explains how to prepare an effective plan for implementing IT strategy. It further covers the complete life cycle of IT management covering IT projects and program management, IT service management, planning and measuring returns from IT investment, and management of IT led change in the organization. In addition, it has a complete chapter on computer ethics, IPR management, and Indian cyber laws dealing with cybercrime. Several case studies having an Indian context are added along with the multiple choice questions, wide references and bibliography making this book further useful. In the third edition, the following new topics have been added to make this book further enriched:

- Information Systems in Organization
- Strategies for Cloud Adoption
- Enterprise Data Management Strategies
- Strategies for IT Projects Success
- Strategies for Exploiting Web 2.0 and Social Media Platforms
- Strategies for Green IT

Contents: Preface. Preface to the First Edition. Acknowledgements. Business Strategy: Challenges and Opportunities for IT. Business and IT Alignment. Information Systems in Organization. Strategic IT Planning. Enterprise IT Architecture. IT Application Strategy. Strategy for Cloud Computing Adoption. Enterprise Data Management Strategies. Technology Management Strategy for IT. Strategy for IT Program, Project and Portfolio Management. IT Service Management Strategy. IT Sourcing Strategy. Planning and Measuring Returns on IT Investment. Strategies for Managing IT-led Change. Computer Ethics, IPR and Cybercrime Prevention. APPENDICES—A: Gap Assessment of ITSM Principles vs. Practice A Study of Indian Corporations. B: Strategies for Exploiting Web 2.0 and Social Media Platforms. C: Strategies for Green IT. D: Multiple Choice Questions with Answers. Bibliography/Webliography. Index.

Latest Print 2016 / 380 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-5235-3 / ₹ 325.00 / (e-book also available)

DUBEY

Technology and Innovation Management

SANJIVA SHANKAR DUBEY, *Professor (Adjunct) at BIMTECH Greater Noida.*

Technology and Innovation Management is one of most sought-after course offered in Business Schools like MBA or PGDM, and various Technology Institutes. This book written with deep ingrained practical insights and well-researched theoretical foundations is a worthy addition to the body of knowledge existing in this field. The book is designed to be a companion for students and managers who wish to understand technology and innovation management.

By keeping Indian education framework in mind, this book ensures that practices and principles remain grounded and easy to implement. Well-researched concepts make this book very rich in its content. The theories are simple to grasp, and anecdotal stories on Technology and Innovation implementations makes it a most student friendly book to get success in exams as well as in the professional front.

Briefly the book covers in its well written 11 chapters:

- Relationship between technology, Innovation and Strategy
- Developing Technology Strategy
- Role of Government in Technology Development
- Core principles of Technology Management
- Core principles Innovation management, types and Patterns of Technological Innovation, S-Curve and the Segment Zero Principle
- Methodology to do Technology forecasting and Assessment
- Product and Process Development and role of technology,
- Managing Research and Development (R&D), Intellectual property
- Technology and business model

- Technology and Innovation Implementation
- Overview of Existing and Emerging Technology
- Human Aspects and Social Issues in Technology Management
- Technology and Sustainability

Contents: Preface. Technology and Innovation Management: Conceptual Foundation. Technology Strategy. Technology Management. Innovation Management. Technology Forecasting, Assessment and Acquisition. Product and Process Development. Technology and Business Model. Technology and Innovation Management (TIM) Implementation. Emerging Technologies. Human Aspects of Technology. Technology and Sustainability. Appendix A: Major Technology in Select Industries. Index.

244 pp. (approx.) / 17.8 × 23.5 cm
ISBN-978-81-203-5312-1 / FORTHCOMING

KELKAR

IT Service Management: A Concise Study

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering and the Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay.*

Today, besides focusing on technology and internal organization of the company, it has become important for IT service providers to focus on their service quality and relationship with customers. This book has been designed to equip them with the knowledge, skills and attitudes to deliver quality services and maintain strong business relations with their customers. Presented in concise form, the book not only discusses the essentials of theory and best practices followed in the industry but also emphasizes the service improvement process.

The book is aimed at students of Computer Science and Engineering, Information Technology, MCA, M.Sc. (IT) and MBA. Besides, it is equally useful for IT professionals and Trainers.

Contents: Preface. Overview of IT Service Management Presentation. Abbreviations. Strategic Role of IT. Basics of Service Management. Strategizing Services. Deploying Services. Service Management: Strategic Processes. Operating and Improving Services. Service Management: Tactical Processes. Appendices—A: Managing IT Function. B: Sources for Best Practices. C: Process for Service Improvement. Suggested Reading.

Latest Print 2012 / 588 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4484-6 / ₹ 495.00 / (e-book also available)

Machine Learning

ALPAYDIN

Introduction to Machine Learning, 3rd ed.

ETHEM ALPAYDIN, *Professor, Department of Computer Engineering, Bogazici University, Istanbul.*

Introduction to Machine Learning is a comprehensive textbook on the subject, covering a broad array of topics not usually included in introductory machine learning texts. Subjects include supervised learning; Bayesian decision theory; parametric, semiparametric, and nonparametric methods; multivariate analysis; hidden Markov models; reinforcement learning; kernel machines; graphical models; Bayesian estimation; and statistical testing.

Machine learning is rapidly becoming a skill that computer science students must master before graduation. This new edition of the book reflects this shift, with added support for beginners, including selected solutions for exercises and additional example data sets (with code available online). Other substantial changes include discussions of outlier detection; ranking algorithms for perceptors and support vector machines; matrix decomposition and spectral methods; distance estimation; new kernel algorithms; deep learning in multilayered perceptrons; and the nonparametric approach to Bayesian methods. All learning algorithms are explained so that students can easily move from the equations in the book to a computer program.

The book can be used by both advanced undergraduate and postgraduate students. It will also be of interest to professionals who are concerned with the application of machine learning methods.

"Ethem Alpaydin's *Introduction to Machine Learning* provides a nice blending of the topical coverage of machine learning (à la Tom Mitchell) with formal probabilistic foundations (à la Christopher Bishop). This newly updated version now introduces some of the most recent and important topics in machine learning (e.g., spectral methods, deep learning, and learning to rank) to students and researchers of this critically important and expanding field."

—**John W. Sheppard,** *Professor of Computer Science, Montana State University*

"This volume is both a complete and accessible introduction to the machine learning world. This is a 'Swiss Army knife' book for this rapidly evolving subject. Although intended as an introduction, it will be useful not only for students but for any professional looking for a comprehensive book in this field. Newcomers will find clearly explained concepts and experts will find a source for new references and ideas."

—**Hilario Gómez-Moreno,** *IEEE Senior Member, University of Alcalá, Spain*

Contents: Preface. Notations. Introduction. Supervised Learning. Bayesian Decision Theory. Parametric Methods. Multivariate Methods. Dimensionality Reduction. Clustering. Nonparametric Methods. Decision Trees. Linear Discrimination. Multilayer Perceptrons. Local Models. Kernel Machines. Graphical Models. Hidden Markov Models. Bayesian Estimation. Combining Multiple Learners. Reinforcement Learning. Design and Analysis of Machine Learning Experiments. A. Probability. Index.

Latest Print 2015 / 640 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5078-6 / ₹ 625.00

SOMAN, LOGANATHAN & AJAY

Machine Learning with SVM and Other Kernel Methods (with CD-ROM)

K.P. SOMAN, *Head, Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore.*

R. LOGANATHAN, *Research Associate, Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore.*

V. AJAY, *Senior Lecturer, Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore.*

Support vector machines (SVMs) represent a break-through in the theory of learning systems. It is a new generation learning system based on recent advances in statistical learning theory.

Designed for the undergraduate students of computer science and engineering, this book provides a comprehensive introduction to the state of the art algorithm and techniques in this field. It covers most of the well known algorithms supplemented with code and data. One Class, Multiclass and hierarchical SVMs are included which will help the students to solve any pattern classification problems with ease and that in Excel.

KEY FEATURES

- Introduction to Lagrangian duality and iterative methods for optimization
- Separate chapters on kernel based spectral clustering, text mining, and applications in computational linguistics and speech processing
- A chapter on latest sequential minimization algorithms and its modifications to do online learning
- Step by step method of solving the SVM optimization problem in Excel.
- The CD accompanying the book includes animations on solving SVM training problem in Microsoft EXCEL and by using SVM^{Light} software. In addition, Matlab codes is given for all the formulations of SVM along with the data sets mentioned in the exercise section of each chapter.

Contents: Preface. Machine Learning with Support Vector Machines. Supervised Automatic Learning —Probabilistic Framework. Essential Mathematical Background. Kernel Methods and the Evolution of SVM. Support Vector Regression. Simple Variants of SVM —Mangasarian's Approaches. Sequential Minimization Algorithms (SMO). One Class SVM. Multiclass and Hierarchical Support Vector Machines. String Kernels. Kernel Based Methods for Clustering Data. Data Sets. Other Kernel Methods K-PCA, K-CCA, K-PLS, K-ICA. Kernel Methods for Text Categorization. Kernel Methods for Speech Recognition. Kernel Methods in Natural Language Processing — An Introduction. Appendix A: Popular SVM Tools. Appendix B: Biosketch of Scientists. Index.

Latest Print 2011 / 496 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3435-9 / ₹ 425.00

SRA, et al.

Optimization for Machine Learning

Edited by

SUVRIT SRA *is a Research Scientist at the Max Planck Institute for Biological Cybernetics, Tübingen, Germany.*

SEBASTIAN NOWOZIN *is a Postdoctoral Researcher at Microsoft Research, Cambridge, UK.*

STEPHEN J. WRIGHT *is Professor in the Computer Sciences Department at the University of Wisconsin, Madison.*

The interplay between optimization and machine learning is one of the most important developments in modern computational science.

Optimization approaches have enjoyed prominence in machine learning because of their wide applicability and attractive theoretical properties. The increasing complexity, size, and variety of today's machine learning models call for the reassessment of existing assumptions. This book starts the process of reassessment. It describes the resurgence in novel contexts of established frameworks such as first-order methods, stochastic approximations, convex relaxations, interior-point methods, and proximal methods. It also devotes attention to newer themes such as regularized optimization, robust optimization, gradient and subgradient methods, splitting techniques, and second-order methods. Many of these techniques draw inspiration from other fields, including operations research, theoretical computer science, and subfields of optimization. The book will enrich the ongoing cross-fertilization between the machine learning community and these other fields, and within the broader optimization community.

Contents: Series Foreword. Preface. Introduction: Optimization and Machine Learning. Convex Optimization with Sparsity-Inducing Norms. Interior-Point Methods for Large-Scale Cone Programming. Incremental Gradient, Subgradient, and Proximal Methods for Convex Optimization: A Survey. First-Order Methods for Nonsmooth Convex Large-Scale Optimization. I: General Purpose Methods. First-Order Methods for Nonsmooth Convex Large-Scale Optimization. II: Utilizing Problem's Structure. Cutting-Plane Methods in Machine Learning. Introduction to Dual Decomposition for Inference. Augmented Lagrangian Methods for Learning, Selecting, and Combining Features. The Convex Optimization Approach to Regret Minimization. Projected Newton-type Methods in Machine Learning. Interior-Point Methods in Machine Learning. The Tradeoffs of Large-Scale Learning. Robust Optimization in Machine Learning. Improving First and Second-Order Methods by Modeling Uncertainty. Bandit View on Noisy Optimization. Optimization Methods for Sparse Inverse Covariance Selection. A Pathwise Algorithms for Covariance Selection.

Latest Print 2013 / 508 pp. / 20.0 × 25.0 cm
ISBN-978-81-203-4754-0 / ₹ 795.00

Management Information Systems

ARPITA GOPAL & PATIL

Magnifying Object-oriented Analysis and Design

ARPITA GOPAL, *Director–MCA at Sinhgad Institute of Business Administration and Research, Pune.*
NETRA PATIL, *Assistant Professor, Sinhgad Institute of Business Administration and Research, Pune.*

A firm grounding in the theory of object-oriented analysis and design and its practical application is essential for understanding how to build good software. This book, the third of the *Magnifying Series*, attempts to explain the object-oriented analysis and design of software through case studies covering various business domains.

The book describes various software development models and techniques before introducing the concepts and principles of object-oriented analysis and design. It explains analysis models with the help of business process diagrams, use-case diagrams, class diagrams and object diagrams. The book elaborates design models through sequence diagrams, collaboration diagrams, statechart diagrams and activity diagrams. It also deals with implementation models with the help of component and deployment diagrams. For each diagram, its purpose, notations and design guidelines are given. In addition, the book explains existing object-oriented methodologies.

KEY FEATURES

- Develops a framework for analysis of business cases followed by design of software solutions for them.
- Includes several case studies to depict the application of object-oriented analysis and design.
- Presents chapter-end exercises for the students' comprehension of the subject matter.

The text is designed for the students of computer applications (BCA/MCA), computer science (B.Sc./M.Sc.), and computer science and engineering (BE/B.Tech).

Contents: Preface. System Analysis and Design. Object-Oriented Analysis and Design. Business Process Diagram and Use Case Diagram. Class Diagram and Object Diagram. Sequence Diagram and Collaboration Diagram. Activity Diagram and State Chart Diagram. Component Diagram and Deployment Diagram. Case Study: Student Loan System. Case Study: On Line Trading of Securities. Case Study: Credit Card Management System. Case Study: Warehouse Management System. Existing Object-Oriented Methodologies. Index.

Latest Print 2014 / 304 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4068-8 / ₹ 250.00 / (e-book also available)

CHATTERJEE

Management Information Systems

INDRAJIT CHATTERJEE *is presently the Vice Principal of IIAS School of Management, Siliguri Campus, West Bengal.*

This introductory book on Management Information Systems (MIS) is designed to serve as a text for the students of management (BBA and MBA) and computer applications (BCA and MCA). Today, many management information systems are in widespread use by the managers at operational, middle and senior levels. This book will be equally useful to working executives and professionals who wish to grasp the essentials of management information systems.

This book discusses all the major areas in information systems with contemporary issues and their effects on business and organization. The main focus is on practical orientation and application of information systems and the emphasis is on real business scenarios. Each chapter provides spotlights on organization, technology or management related to the topics discussed.

The book provides a broad treatment of the core topics of MIS, namely databases, data communication, e-commerce, supply chain management, customer relationship management, decision support systems, knowledge management, and also the ethical and social issues involved in information systems. It also discusses the development methodologies of system analysis and design which enable the actual information systems to be built to meet the needs of an organization. Case studies based on management of business information provide the students with insight into the actual processes involved.

Contents: Preface. Introduction. Management Information Systems (MIS). Hardware. Software. Database Management. Business Data Communication. Application of Information Systems. Organization and Information System. System Analysis and Design. E-commerce. Supply Chain Management. Customer Relationship Management (CRM). Decision Support Systems. Executive Information System. Knowledge Management. Information Systems: Ethical and Social Issues. Appendix I: Case Studies—Hotel is Hot. Software is Soft. Organization: Can You Organize? Supply Chain Management—A Pharmaceutical Company. Close Down or Not to Close Down. Glossary. References. Index.

Latest Print 2013 / 216 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4023-7 / ₹ 225.00 / (e-book also available)

DeSOUZA & HENSGEN

Managing Information in Complex Organizations: Semiotics and Signals, Complexity and Chaos

KEVIN C. DeSOUZA and TOBIN HENSGEN.

From data to information and on to *actionable*

knowledge—the authors present in this seminal work an eminently scientific approach for an effective design for processing information.

Applications in information processing, of such concepts as evolution, semiotics, entropy, complexity, emergence, crisis, and chaos theory are presented to show their relevance to effective crisis management. The authors show how to evaluate and share information to *avoid* a disaster rather than simply *respond* to it. In fact the book highlights the question: *Why do organizations continue to fail to process available information optimally to evade conditions related to impending crisis*?

The book is useful as a text for courses in Information Systems and Corporate Management. On the practical side, it is an ideal book for study and reference for those who deal in law enforcement, officers in defence organizations, national infrastructure protection and industrial security. In short, it is for all who seek better ways to gather, manage, and share information.

Original and informative, it should be an essential course reading within the diverse and complex field of managing information processing and dissemination.

— Raymond A. Hackney,
Manchester Metropolitan University, Business School

The authors demonstrate vividly through the use of examples and case studies, how information signals if unchecked, can make an organization vulnerable to a crisis. This is an invaluable guidebook for academicians and practitioners alike. A 'must-read' for defence strategy planners.

— Captain Ganesh Kumar Vanapalli, *Indian Navy, New Delhi*

Contents: Figures. Preface. Acknowledgments. Introduction. Organizations of Information: Semantics, Cybernetics, Entropy, and Signals. Information Forms and Dependence. Evolutionary Dimension of Information Processing: Semiotics. Spatial Dimension of Information Processing: Coupling, Cohesion, and Chaos. Temporal Dimension of Information Processing: Emergence. Information Processing, Complexity, and Crises. Barriers to Optimal Information Processing. Setting up the Organization for Optimal Information Processing. Recap and Real Time. The Future of Information Processing. Epilogue. Appendices. Notes. Index. About the Authors.

Latest Print 2009 / 264 pp. / 15.3 × 22.9 cm
ISBN-978-81-203-2737-5 / ₹ 250.00

JANAKIRAMAN & SARUKESI

Decision Support Systems

V.S. JANAKIRAMAN, *Professor of Computer Science, PSG College of Arts & Science, Coimbatore.*
K. SARUKESI, *Professor of Computer Science, Bharathiyar University, Coimbatore.*

This compact and easy to read book describes in detail the basic principles of Decision Support Systems (DSS). The book also gives a comprehensive account of the various models used in decision making process, the many facets of DSS and explains how they are implemented. Further, it discusses the significance of business reengineering, the role of client-server technology, Internet and Intranet, and analyzes the concepts of Database Management Systems (DBMS), model management and various GUIs.

Designed as a textbook for the undergraduate and graduate students of computer science and manage-ment, this book would also be of great help to the practising professional.

Contents: Preface. Acknowledgements. Concepts in General Management. Information Systems. Decision Support Systems. Database Management Systems. Model Base Management Systems. Dialogue Management Subsystem. Hardware and Software Technologies for DSS. Artificial Intelligence and Expert Systems. Internet: The Future of Computing. Electronic Data Interchange. Computer Networks. Appendix: A—Oracle: A Case Study in Oracle. B—Interactive Financial Planning System. Index.

Latest Print 2009 / 236 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-1444-3 / ₹ 150.00

JHA

Computer Concepts and Management Information Systems, 2nd ed.

DAVENDRANATH G. JHA, *Senior Faculty of Information System, K.J. Somaiya Institute of Management Studies and Research, Mumbai.*

The book, in its second edition, precisely addresses the need of management students to acquaint with the basic concepts of computers, information technology and information system.

The book provides readers with information pertaining to database concepts, networking essentials, web concepts and phases of system development life cycle. The business processes such as Enterprise Resource Planning, Customer Relationship Management and in e-Commerce are also introduced in the second edition.

Thus the book can be regarded as one-stop compact teaching-reading resource for getting started with topics relevant to development of IT solutions.

KEY FEATURES

- The text is lecture based, which makes the teaching of the subject easier.
- Comprehensive coverage of all important topics for thorough understanding of the subject.
- Chapter-end review questions help students test their own knowledge of the subject matter.
- Chapter-end summary for quick recapitulation of concepts before examination or moving to the next chapter.
- Tables, figures and illustrations enhance concept apprehension.

Contents: Preface. Elements of Computer System. History and Classification of Computers. Hardware and Peripheral

Devices. Classifying Software. Operating System and File Organization Design. Database Concepts. Network Essentials. Web Concepts. System Development Process. Information System. IT Applications in Business. Glossary. Bibliography. Model Paper. Index.

Latest Print 2013 / 232 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4707-6 / ₹ 195.00 / (e-book also available)

JOSEPH, S.J. & MOHAPATRA

Management Information Systems in the Knowledge Economy, 2nd ed.

P.T. JOSEPH, S.J., *Professor of Information Systems and Organizational Behaviour at the Xavier Institute of Management Bhubaneswar (XIMB). Currently, he also holds the position of the Director of XIM Bhubaneswar.*
SANJAY MOHAPATRA, *Professor of Information Systems at the Xavier Institute of Management Bhubaneswar (XIMB).*

The textbook, now in its Second Edition, includes a new chapter on *ERP as a Business Enabler*. The text continues to provide a comprehensive coverage of business applications of management information systems in today's new era of knowledge-based economy where the value of a firm's knowledge assets has become a key source that can be leveraged into long-term benefits. The text focuses on the information systems requirements vis-à-vis management perspectives required in business environment. The technology innovations are covered, with particular emphasis on Data Management Systems, Decision Support and Expert Systems. On the other hand, several business applications such as e-commerce and mobile applications, made possible only because of continuing innovations in the field of information and communications technology (ICT) are thoroughly treated in the text. Besides, the book covers crucial issues of information security, and legal and ethical issues which are important both from the point of view of technology and business.

The book uses case discussions in each chapter to help students understand MIS practices in organizations. The cases also enable students to grasp how a systemic approach to every functional aspect of management can lead to formulating technology-based strategies in line with corporate goals.

Primarily intended for undergraduate and postgraduate students of management (BBA/MBA), the knowledge and information provided in this book will also be of immense value to business managers and practitioners for improving decision-making processes and achieving competitive advantage.

Contents: Preface. Preface to the First Edition. Information Systems in the Knowledge Economy. Information Systems for Strategic Advantage. Database Design and Process Modelling. Decision Support and Expert Systems. Knowledge Management for Strategic Advantage. Computer Communication Systems. Information Systems Supporting e-Commerce Models. Information Systems for Mobile Commerce. Knowledge Management Applications in Business Functions. Information System Security. Legal and Ethical Issues. ERP as a Business Enabler. Index.

Latest Print 2014 / 572 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4876-9 / ₹ 475.00 / (e-book also available)

KELKAR

Information Systems: A Concise Study

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering and the Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay.*

Here is a comprehensive book that serves as a one-stop overview for understanding, developing, and deploying Information Systems. It aims to provide the students with a conceptual framework to understand Information Systems (IS). The text, written in easy to understand language using bullet form style to highlight various points, covers topics the way they are encountered by a typical IS professional.

The book is divided into three units—Unit I: Information Systems Basics; Unit II: Managing with Information; and Unit III: Managing Information Resources. Some of the topics discussed enlarge the scope of the book and include: e-Commerce and e-Business; CRM, ERP, SCM; Application Scrap Book; Enterprise and Strategy; Strategy Planning for IS; and Justification for IS. The main body of the text is supplemented with six appendices, which can be read on a need-to-know basis.

The book is well suited for the undergraduate students of Computer Science and Engineering, Information Technology; postgraduate students of Information Technology and Computer Science; and students pursuing MCA and MBA. Those teaching a course on IS or conducting equivalent training programme for professionals will also benefit from this text. Finally, the book would be useful for those professionals who wish to grasp the essentials without attending a formal instructional course.

Contents: Preface. Abbreviations. Unit One: Information systems basics—Managing in the 21st Century. Information, Systems, and IS. Classification of IS. Applications Scrap Book. e-Commerce and e-Business. CRM, ERP, and SCM. Unit Two: Managing with Information—Enterprise and Strategy. Strategic Planning. IS for Decision Support. Justification for IT/IS. Unit Three: Managing Information resources—Information Resources Management. Strategic Planning for IS Function. Information Security and Integrity. Appendices—A. Information Technology Basics. B. Data Management. C. Software Development in Nutshell. D. Brief Look at Software Project Management. E. Software Requirements Elicitation. F. Note on Metrics and Measurements. Suggested Reading.

Latest Print 2009 / 952 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3651-3 / ₹ 495.00 / (e-book also available)

KELKAR

Management Information Systems: A Concise Study, 2nd ed.

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering and the Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay.*

It is widely recognized that the knowledge of information systems is very much essential in today's business organizations to survive and prosper. This book, in its second edition, provides students with a conceptual framework to understand information systems. The focus of information systems (irrespective of the level of use of information) is on producing quality information needed to facilitate decision making. The objective of this book is to capture the material on information systems and organize it around a framework that offers a current and relevant knowledge based on information system by providing just the adequate amount of material in a concise format.

The book is organized in three parts: (i) **Information systems basics**, (ii) **Managing with information** and (iii) **Managing information resources**. Though the main structure of the second edition remains the same, the chapters have been updated and revised as per the recent development in the fields of information technology. Besides this, a new chapter is added to explain the concepts like e-business, Customer relationship management (CRM), Enterprise resources and planning (ERP) and Supply chain management (SCM), comprehensively.

Intended for the students of computer applications (BCA and MCA) and management (BBA and MBA), and the undergraduate students of Computer Science engineering, the book is equally useful for the busy professionals who wish to grasp the essentials of management information systems, without attending a formal instructional course.

Contents: Preface. Preface to the First Edition. Abbreviations. Unit One: Information Systems Basics—Managing in 21st Century. Information, Systems, and IS. Classification of IS. E-business, CRM, ERP, and SCM. Unit Two: Managing With Information—Strategic Planning and IS. Justification for IT/IS. IS for Decision Support. Quality and Privacy Issues. Unit Three: Managing Information Resources—Information Resources Management. Strategic Planning for IS Function. Security, Control and Audit. Suggested Reading.

Latest Print 2015 / 316 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3765-7 / ₹ 250.00 / (e-book also available)

KING (Ed.)

Planning for Information Systems

Editor: WILLIAM R. KING.

This book is a comprehensive, single source overview of the numerous ideas and processes that are identified with IS planning. The authors show the evolution of IS planning from the early technology-centered approaches to the present concerns with competitive positioning, organizational learning, and the development of organizational capabilities. While many chapters deal with high level strategic planning, the book gives equal attention to on-the-ground planning issues.

Divided into four parts, Part I, focuses on how IS planning has evolved over the years; Part II, describes IS planning in terms of critical success factors and includes a knowledge-based view of IS planning; Part III, deals with predicting the value that an IS project may have; Part IV, considers information strategy as a goal and/or outcome of IS planning.

Contents: Series Editor's Introduction. Planning for Information Systems: An Introduction. Part I: Key Concepts of Information Systems Planning—The Evolution of Planning for Information Systems. Business–Information Systems Alignment: Taking Stock and Looking Ahead. Aligning Business and Information Systems: Review and Future Research Directions. The Role of Dynamic Organizational Capabilities in Creating, Renewing, and Leveraging Information Systems Competencies. Part II: The Organizational Information Systems Planning Process. Using Critical Success Factors in Setting Information Technology and General Management Resource Priorities. A Knowledge-Based View of Information Systems Planning and Its Consequences: Review and Propositions. Strategic Alignment: Highly Valued, but Elusive in Practice. Information Technology Budgeting: Planning's Evil Twin. Some Dos and Don'ts of Strategic Information Systems Planning. Strategic Information Systems Planning: The Search for an Optimal Level. The Role of Organizational Learning in Strategic Information Systems Planning in Uncertain Environments. Part III: Information Systems Investment Planning—Information Systems Planning: The Search for Potential Value. Planning Technology Investments for High Payoffs: A Rational Expectations Approach to Gauging Potential and Realized Value in a changing Environment. Information Technology Investment Planning: Anticipating Social Subsystem Costs and Benefits. Option-Based Management of Risk in Information Systems Planning. Creating Better Environments for Information Systems Development Projects. The Moderating Effects of Coordinated Planning on Project Performance. Part IV: Goals and Outcomes of Information Systems Planning—Information Strategy: Confronting Research with Practice. How Information Technology Infrastructure Flexibility Shapes Strategic Alignment: A Case Study Investigation with Implications for Strategic IS Planning. How Information Technology Resources Can Provide a Competitive Advantage in Customer Service. Planning for Successful Orchestrated E-Process Supply-Chain Partnerships. Planning Successful Internet-Based Projects: A Risk–Performance Framework. Editors and Contributors. Series Editor. Index.

Latest Print 2010 / 528 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4057-2 / ₹ 425.00

MISRA

Information Systems Management in Business and Development Organizations: Text and Cases

HAREKRISHNA MISRA, *Professor, IT and Information Systems Group, Institute of Rural Management Anand (IRMA), Gujarat.*

Management Information Systems (MIS) has fast emerged as a multi-disciplinary area having strategic interfaces to achieve organizational objectives. This comprehensive book discusses the underlying principles of business and development organizations, identifies their core areas and prescribes approaches to develop MIS.

Devided into five parts, **Part I—Understanding Organizations for MIS** deals with organizational issues and focuses on the rationale behind creating organizations, especially business and development organizations, to understand their distinguishing features. **Part II—Systems Approach to Organizations** covers conceptualization, identification, design and development of Information System (IS) for the organization in order to have better systems in place to support organizational goals. **Part III—Understanding MIS** discusses the relevance of MIS in organizations and the forms it can take to meet the strategic needs of the respective organizations. **Part IV—Understanding Information Technologies** describes possible approaches to plan, identify and deploy ICT in the acquiring organizations and provides insight into the barriers that creep in during identification and deployment of IS and ICT keeping in view the organizational objectives. **Part V—Planning and Implementation of MIS** concludes with a discussion on preparation of MIS plan and issues related to its implementation.

The book is intended for the postgraduate students of management specializing in rural management and IT.

Contents: Preface. Introduction An Overview of MIS. Part I: Understanding Organizations for MIS—Understanding Business Organizations. Understanding Development Organizations. Organizational Management and Control: Commonality in Business and Development Organizations. Part II: Systems Approach to Organizations—Systems Approach to Organizations. Managing Data and Information. Information System Evolution and Modelling. Information System (Identification, Design and Development). Information System Quality. Part III—Understanding MIS—MIS—Its Organization. Forms of MIS. Architecture of MIS. Part IV—Understanding Information Technologies—Understanding and Planning Information Technologies (Hardware, Software and Databases). Understanding and Planning Information Technologies (Network and Communication). Planning Information Technologies Infrastructure. Part V—Planning and Implementation of MIS—Planning MIS. Implementation of MIS. Index.

Latest Print 2013 / 400 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4796-0 / ₹ 350.00 / (e-book also available)

MOHAPATRA

Cases in Management Information Systems

SANJAY MOHAPATRA, *Associate Professor in Information Systems at Xavier Institute of Management Bhubaneswar (XIMB).*

This book is intended as a supplement for courses in Management Information Systems (MIS). It uses cases to explain MIS concepts. It illustrates how computer-based information systems can be used to support an organization's objectives and strategic plans.

The book's objective is to capture the material from a wide range of sectors such as health care, developmental activities, bank operations, microfinance, etc. and organize it around a framework that would be useful for students to understand how MIS can help in overcoming corporate challenges. It prepares students as managers, providing a clear focus on information, rather than data, and its use in business. These cases can also be used by practitioners as examples for designing MIS in their own organizations.

For each case, the costs and benefits of the information system have been evaluated by calculating the Return on Investment (ROI). What is more, not only quantitative benefits, but also qualitative benefits (social and public benefits) have been identified to justify the need for technology-enabled MIS for supporting corporate strategies and operations.

The book would be useful to students of MBA, BE (ICT), MCA and M.Sc. (Computer Science) courses. Besides, it would be of benefit to senior executives participating in Management Development Programmes.

Contents: Foreword. Preface. Acknowledgements. CASE ONE: Information Systems—Ayush Hospital. CASE TWO: MIS at BASIX. CASE THREE: MIS at CYSD. CASE FOUR: MIS at DFID. CASE FIVE: MIS at Care Hospitals. CASE SIX: National Bank for Agriculture and Rural Development—MIS at NABARD. CASE SEVEN: MIS at National Rural Health Mission (NRHM), Orissa. CASE EIGHT: Designing the Management Information Systems for Orissa Rural and Urban Producers' Association (ORUPA). CASE NINE: Management Information Systems—UNDP. CASE TEN: Orissa Industrial Infrastructure Development Corporation (IDCO). CASE ELEVEN: MIS at SKS Microfinance—A Report. CASE TWELVE: MIS at HDFC Commodities Loan Division.

Latest Print 2011 / 264 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3614-8 / ₹ 225.00 / (e-book also available)

NAIR & CHANDRA

Informatics

VIJAYAKUMARAN NAIR K. *has been Associate Professor in the Department of Zoology, Mar Ivanios College, Thiruvananthapuram, Kerala.*
VINOD CHANDRA S.S., *Director, Computer Centre, University of Kerala, Thiruvananthapuram.*

The book provides an overview of the basic concepts of informatics. Dealing with the concerns and issues of

digital technology, the text has been written with the objective of introducing students with the tools and applications of information technology, highlighting its use by the digital society. It creates awareness on the nature of emerging digital knowledge society and social issues.

Organized into six chapters, the book explains the fundamentals of informatics, besides sharing and analyzing the consequences of rapid computerization. Beginning with an overview of information technology explaining evolution of computers, computer classification, computer hardware and networking, the book moves to the Internet which is considered as a knowledge repository. It then explains IPR, copyright, patents and software license agreement. The book also highlights and discusses social informatics, e-Governance, applications of informatics in various subject areas and futuristic IT.

The book is primarily intended as a text for undergraduate and postgraduate students of various disciplines wherein 'Informatics' is prescribed as a core or foundation course. The book will also be of immense use to general readers who are interested in knowing the applications of information technology.

KEY FEATURES

1. Provides updated information as per the course curriculum of many universities.
2. Includes labeled and immaculate illustrations for clear understanding of the concepts.
3. Chapter-end review questions to reinforce to concepts understanding and to help students prepare for examinations.
4. Presents an extensive glossary of technical terms.

Contents: Preface. Overview of Information Technology. Knowledge Skills. Social Informatics. IT Applications. Specific Areas in Informatics. Futuristic IT. Index.

Latest Print 2014 / 240 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4988-9 / ₹ 250.00 / (e-book also available)

RAJARAMAN

Analysis and Design of Information Systems, 3rd ed.

V. RAJARAMAN, *Honorary Professor, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore.*

One of the most important uses of computers is (as an aid to managers) to provide up-to-date information to efficiently run their organizations. Of the total number of computers installed in the world today, over eighty percent are used in organizations for management information systems. It is thus very important for all students of management, commerce and computer science to know how to design computer-based information systems to aid management. This introductory text gives a lucid, self-contained presenta-tion to students on how to analyse and design information systems for use by managers.

Information Systems Analysis and Design (also known as System Analysis and Design) is a compulsory subject for MCA, BCA, B.Com. and B.E. students of Computer Science and Information Technology. This book covers the syllabus of this course and that of the DOEACC (Level A) examination.

Thoroughly classroom tested and evolved out of twenty years of teaching Information Systems Design course at IIT Kanpur and IISc., Bangalore, this book presents real Indian examples.

In this third edition every chapter has been updated, besides the addition of a new chapter on **Use Case Method** to reflect the rapid changes taking place in designing information systems.

This book has been used to prepare learning material for the course Systems Analysis and Design for the National Programme for Technology Enhanced Learning of the Ministry of Human Resource Development, Government of India. The author has also delivered 40 lectures on this topic which may be heard in YouTube. This book also contains supplementary materials like PPTs and objective questions with explanation for each incorrect choice which are available on **www.phindia.com/rajaraman_ADIS**

Contents: Preface. Information and Management. Examples of Information Systems. Information Systems Analysis Overview. Information Gathering. System Requirements Specifications. Feasibility Analysis. Data Flow Diagrams. Process Specifications. Decision Tables. Use Case Method. Logical Database Design. Database Management Systems (DBMS). Object-Oriented System Modelling. Data Input Methods. Designing Outputs. Control, Audit and Security of Information Systems. Electronic Commerce. System Design Example. Appendix. References. Index.

Latest Print 2016 / 344 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4384-9 / ₹ 295.00 / (e-book also available)

SADAGOPAN

Management Information Systems, 2nd ed.

S. SADAGOPAN, *Director of IIIT-Bangalore since 1999.*

It is widely recognised that the knowledge of information systems is essential in today's business organisations to survive and prosper. This book in its Second Edition, discusses all the major areas in information systems. It includes issues in the design, development and application of organisation-wide information systems and their effect on business and organisations. The issues discussed in the book supports the management of an enterprise in its planning, operation and control functions.

SALIENT FEATURES OF THE BOOK

- Balanced treatment of both the technical and organisational issues involved
- Wide range of topics including databases, decision support systems, expert systems and system analysis
- Contemporary examples from the Indian industry

Though the main structure of the Second Edition remains

the same, the chapters have been updated and revised as per the recent developments in the field of information technology.

NEW TO THIS EDITION

- Several 'Case-studies' have been incorporated at the end of each chapter.
- New references have been included in the text to support the added text.
- Learning objectives have been given at the beginning of each chapter.
- The text is presented in an attractive manner as numerous new figures and pictures have been added.

Contents: Preface. Note to Instructor. Introduction. Organisational Systems. Information Systems and Organisations. Computers and Information Systems. Communication Technology. Database Technology. Decision Support Systems (DSS). Expert Systems and Artificial Intelligence. System Analysis and Design. Bibliography. Index.

Latest Print 2014 / 336 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4892-9 / ₹ 325.00 / (e-book also available)

Microprocessors and Microcontrollers

BAHADURE

Microprocessors: The 8086/8088, 80186/80286, 80386/80486 and the Pentium Family

NILESH B. BAHADURE, *Reader in the Department of Electronics and Telecommunication Engineering at Bhilai Institute of Technology, Durg.*

This comprehensive text provides an easily accessible introduction to the principles and applications of microprocessors. It explains the fundamentals of architecture, assembly language programming, interfacing, and applications of Intel's 8086/8088 microprocessors, 8087 math coprocessors, and 8255, 8253, 8251, 8259, 8279 and 8237 peripherals. Besides, the book also covers Intel's 80186/80286, 80386/80486, and the Pentium family microprocessors.

The book throughout maintains an appropriate balance between the basic concepts and the skill sets needed for system design. A large number of solved examples on assembly language programming and interfacing are provided to help the students gain an insight into the topics discussed.

The book is eminently suitable for undergraduate students of Electrical and Electronics Engineering, Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Computer Science and Engineering, and Information Technology.

Contents: Preface. Introduction. Architecture and Functional Block Diagram of Microprocessor 8086. Instruction Sets and Programming of Microprocessor 8086. Assembly Language Programming of Microprocessor 8086. Interrupts of Microprocessor 8086. Interfacing of Memory with Microprocessors 8086 and 8088. Timing Diagram of Microprocessor 8086. Numeric Data Processor 8087. Programmable Peripheral Interface 8255. Programmable Interval Timer 8253/8254. Programmable Interrupt Controller. Universal Synchronous—Asynchronous Receiver Transmitters. Programmable Keyboard Display Interface 8279. Direct Memory Access (DMA) Controller 8257/8237. Other 16-bit Microprocessors 80186 and 80286. 32-bit Microprocessors 80386, 80486 and Introduction to Pentium Family. Index.

Latest Print 2014 / 680 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3942-2 / ₹ 425.00 / (e-book also available)

CHATTOPADHYAY

Embedded System Design, 2nd ed.

SANTANU CHATTOPADHYAY, *Professor at the Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology Kharagpur.*

Embedded system, as a subject, is an amalgamation of different domains, such as digital design, architecture, operating systems, interfaces, and algorithmic optimization techniques. This book acquaints the students with the alternatives and intricacies of embedded system design. It is designed as a textbook for the undergraduate students of Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Computer Science and Engineering, Information Communication Technology (ICT), as well as for the postgraduate students of Computer Applications (MCA).

While in the hardware platform the book explains the role of microcontrollers and introduces one of the most widely used embedded processor, ARM, it also deliberates on other alternatives, such as digital signal processors, field programmable devices, and integrated circuits. It provides a very good overview of the interfacing standards covering RS232C, RS422, RS485, USB, IrDA, Bluetooth, and CAN.

In the software domain, the book introduces the features of real-time operating systems for use in embedded applications. Various scheduling algorithms have been discussed with their merits and demerits. The existing real-time operating systems have been surveyed. Guided by cost and performance requirements, embedded applications are often implemented partly in hardware and partly in software. The book covers the different optimization techniques proposed in the literature to take a judicious decision about this partitioning of application tasks. Power-aware design of embedded systems has also been dealt with.

In its second edition, the text has been extensively revised and updated. Almost all the chapters have been modified and elaborated including detailed discussion—on hardware platforms—ARM, DSP, and FPGA. The chapter on "interfacing standards" has been updated to incorporate the latest information.

The new edition will be thereby immensely useful to the students, practitioners and advanced readers.

Contents: Preface. Introduction. ARM: An Advanced Microcontroller. Digital Signal Processors. Field Programmable Gate Arrays. Interfacing. Real-time Operating System. Specification Techniques. Hardware–Software Cosimulation. Hardware–Software Partitioning. Functional Partitioning and Optimization. Low Power Embedded System Design. Bibliography. Index.

Latest Print 2016 / 244 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4730-4 / ₹ 250.00 / (e-book also available)

GHOSH & SRIDHAR

0000 to 8085: Introduction to Microprocessors for Engineers and Scientists, 2nd ed.

P.K. GHOSH, *Professor at the Indian Institute of Technology Kanpur.*
P.R. SRIDHAR, *Electronics Engineer, Indian Institute of Technology Kanpur.*

The 8085 processor and its peripherals have been used to explain the basic concepts of microprocessor operation and system realization. This text can be used by electrical engineering undergraduates in their first course on microprocessors, and by engineering students in several other disciplines, and also by students of science with some preparation in digital electronics.

KEY FEATURES

- The peripheral devices are discussed comprehensively.
- The text gives design principles along with complete circuit and printed circuit board details of a stand-alone microcomputer. This also serves as an outstanding illustration of practical realization of microprocessor-based systems.
- The text has been successfully tested in the class-room and also in workshops on microprocessor systems.
- In the present edition, a sample set of monitor routines has been given, the number of problems has been substantially increased, and *full solutions* to the extended problem set have been provided.

Contents: Preface. Preface to the Second Edition. The Generic Microcomputer. The Architecture of a Microprocessor. The 8085A CPU. The 8085A Instruction Set. Memory and Input/Output Addressing. 8085A Minimum System Configuration. EPROM and RAM Memories: 2764 and 6264. Programmable Keyboard/ Display Interface: 8279. Programmable Interval Timer: 8253. Programmable Peripheral Interface: 8255. Serial Communication and the USART 8251. Programmable DMA Controller: 8257. Programmable Interrupt Controller: 8259. Appendices—A: A Summary of Basic Digital Circuits. B: Some Assembly Language Programs. C: Design Principles and Full Circuit Description of the Microcomputer CASE 3.1. D: 8085A Instruction Set Tables. Problems. Solutions to the Problems. Index.

Latest Print 2013 / 328 pp. / 21.6 × 27.8 cm
ISBN-978-81-203-0978-4 / ₹ 350.00

KRISHNA KANT

Microprocessors and Microcontrollers: Architecture, Programming and System Design 8085, 8086, 8051, 8096, 2nd ed.

KRISHNA KANT, *Dean (Academic) at Jaypee Institute of Information Technology, Noida.*

This book provides the students with a solid foundation in the technology of microprocessors and microcontrollers, their principles and applications. It comprehensively presents the material necessary for understanding the internal architecture as well as system design aspects of Intel's legendary 8085 and 8086 microprocessors and Intel's 8051 and 8096 microcontrollers.

The book throughout maintains an appropriate balance between the basic concepts and the skill sets needed for system design. Besides, the book lucidly explains the hardware architecture, the instruction set and programming, support chips, peripheral interfacing, and cites several relevant examples to help the readers develop a complete understanding of industrial application projects. Several system design case studies are included to reinforce the concepts discussed.

With exhaustive coverage and practical approach, the book would be indispensable to undergraduate students of Electrical and Electronics, Electronics and Communication, and Electronics and Instrumentation Engineering. It can be used for a variety of courses in Microprocessors, Microcontrollers, and Embedded System Design.

The second edition of the book introduces additional topics like I/O interfacing and programming, serial interface programming, delay programming using 8086 and 8051. Besides, many more examples and case studies have been added.

Contents: Preface. Preface to the First Edition. Acknowledgements. System Design Using Microprocessor. What a Microprocessor Is. Intel 8085 Microprocessor—Hardware Architecture. Intel 8085 Microprocessor—Instruction Set and Programming. Intel 8086—Hardware Architecture. Intel 8086 Microprocessor—Instruction Set and Programming. Microprocessor—Peripheral Interfacing. System Design Using Intel 8085 and Intel 8086 Microprocessors—Case Studies. Intel 8051 Microcontroller—Hardware Architecture. Intel 8051 Microcontroller—Instruction Set and Programming. The 8051 Microcontroller-Based System Design—Case Studies. Intel 8096 Microcontroller—Hardware Architecture. Intel 8096 Microcontroller—Instruction Set and Programming. The 8096 Microcontroller-Based System Design—Case Studies. Appendices. Index.

Latest Print 2016 / 876 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4853-0 / ₹ 495.00 / (e-book also available)

KRISHNAMURTHY

Ten Days with 8085 Microprocessor

K.A. KRISHNAMURTHY, *Principal, Sri Siddhartha Institute of Technology, Tumkur (Karnataka).*

This text is designed to provide 'hands-on' experience to students to help them develop an understanding of the hardware components of a microprocessor and the role of software in programming and interfacing aspects of the microprocessor. An 8-bit microprocessor, due to its simpler instruction set and architecture, is an ideal IC chip for providing the students with a solid foundation for microprocessors, their principles and applications. The concepts of all state-of-the-art processors can be understood easily, once the basics of the 8085 are understood. Today's sophisticated microprocessors have a semblance of 8085.

The presentation style adopted in this book in a way is unique. It is a student-friendly text, written as conversation between the teacher and the students. The book lucidly explains the various programming examples in assembly language with a view to enabling students to develop microprocessor-based industrial application projects. Application programs developed in the book are based on the popular microprocessor kit, namely SDA-85.

The book is suitable for both diploma and degree level students pursuing courses in Electronics and Electrical Engineering, Electronics and Communication Engineering and Information and Communication Technology.

Contents: Preface. First Day: Fundamentals. Second Day: Writing and Executing Programs. Third Day: 16-Bit Arithmetic. Fourth Day: Counter and Delay Programs. Fifth Day: Key Debouncing and Serial/Parallel Data Conversion. Sixth Day: Multiplication and Division of Numbers. Seventh Day: Ordering of Data and Code Conversion. Eighth Day: Design of Electronic Lock and Telephone Directory. Ninth Day: Interrupts and Data Communication. Tenth Day: Application of Interrupts. Annexure. Programmable Peripheral Devices. Instruction Set of 8085.

Latest Print 2010 / 152 pp. / 21.6 × 27.8 cm
ISBN-978-81-203-3854-8 / ₹ 150.00 / (e-book also available)

MATHIVANAN

Microprocessors, PC Hardware and Interfacing

N. MATHIVANAN, *Director, University Science Instrumentation Centre, Madurai Kamraj University, Madurai.*

Microprocessor is the most fundamental components in PC systems, and for learning the hardware organization and interfacing techniques, a complete knowledge of 8086 microprocessor is essential. This book thus provides a complete picture of the features and workings of microprocessor. It explains the architecture, instructions, programming, system design, peripheral devices and interfacing.

Beginning with an overview of PC hardware from the original IBM PC to the recent Pentium systems, the book presents the internal architecture and instruction set of 8086 microprocessor and the design of an 8086 based system, and then describes the hardware and software of interfacing techniques to I/O buses and the standard ports in detail, substantiating them with examples and worked out programs in C++ and assembly language. Operations of advanced Intel microprocessors such as 80286, 80386, 80486, Pentium, Pentium Pro, Pentium MMX and Pentium II, and usage of the pins and signals of different types of I/O buses have also been covered in detail.

The book is useful for students of electronics and instrumentation engineering, and courses in communication.

Contents: Preface. Hardware Organization of IBM PC. The 8086 Microprocessor. The 8086 Based System Design. Peripheral Interfaces. Advanced Microprocessors. The Motherboard of IBM PC. Drives. Peripherals. Input-Output Buses. Parallel and Serial Ports. Universal Serial Bus. Appendices. Objective-Type Questions. Answers to Select Review Questions. Index.

Latest Print 2015 / 536 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2317-9 / ₹ 395.00

MATHUR

Microprocessor 8085 and its Interfacing, 2nd ed.

SUNIL MATHUR, *Assistant Professor, Department of Electronics and Communication Engineering, Maharaja Agrasen Institute of Technology, Guru Gobind Singh Indraprastha University, Delhi.*

This comprehensive and thoroughly updated text now in its second edition continues to provide the complete knowledge about the Intel's 8085 microprocessors, its programming and concept of interfacing of memory, Input/output devices and programmable peripheral chips.

Organized in four parts, Part I (Chapters 1–9) covers a review of the analog and digital signals as well as hardware and software related aspects of microprocessor 8085. Part II (Chapters 10 and 11) discusses memory and input-output concepts, analog to digital and digital to analog converters and various memory and IO address decoding techniques. Part III (Chapters 12–17) explains the programmable interfacing chips with extensive interfacing examples. Part IV (Chapters 18 and 19) presents a brief discussion on other 8-bit microprocessors along with 16 and 32-bit Intel Processors. Each topic has been supported with numerous examples that will help students apply the concepts to other microprocessors in the course at advanced level.

This book is designed specifically for the undergraduate students of electronics and communication engineering, computer science and engineering, and information technology.

NEW TO THIS EDITION

- Chapters on "Architecture and Organization of Micro-

processor" and "Instruction Set of 8085 Microprocessor" have been revised and modified substantially.
- Multiple choice questions have been added to all the chapters.

Contents: Preface. Preface to the First Edition. Acknowledgements. **PART—I:** Number System. Architecture and Organization of Microcomputer. Architecture and Organization of Microprocessor. Instruction Set of 8085 Microprocessor. Instruction Timing and Operation of 8085 Microprocessor. Programming of 8085 Microprocessor. Stack and Subroutine. Interrupts of 8085. Serial and Parallel Data Transfer. **PART—II:** IO and Memory Interfacing. Digital–Analog Conversion. **PART—III:** Non-Programmable and Programmable Peripheral Interfacing Chips. 8253/54 Programmable Timer. DMA Controller 8257 and 8237. 8259A, Programmable Interrupt Controller (PIC). Keyboard and Display Interfacing. 8251 Universal Synchronous Asynchronous Receiver Transmitter (USART). **PART—IV:** Other 8-Bit Microprocessors. Advance Microprocessors. Index.

Latest Print 2015 / 712 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4390-0 / ₹ 450.00 / (e-book also available)

MATHUR

Microprocessor 8086: Architecture, Programming and Interfacing

SUNIL MATHUR, *Assistant Professor, Department of Electronics and Communication Engineering, Maharaja Agrasen Institute of Technology, Guru Gobind Singh Indraprastha University, Delhi.*

Primarily intended for the undergraduate students of electronics and communication engineering, computer science and engineering, and information technology, this book skilfully integrates both the hardware and software aspects of the 8086 microprocessor. It offers the students an up-to-date account of the state-of-the-art micro-processors and therefore can be regarded as an incomparable source of information on recently developed microprocessor chips. The book covers the advanced microprocessor architecture of the Intel microprocessor family, from 8086 to Pentium 4.

The text is organized in four parts. Part I (Chapters 1–7) includes a detailed description of the architecture, organization, instruction set, and assembler directives of microprocessor 8086. Part II (Chapters 8–11) discusses the math coprocessor, multiprocessing and multi-programming, the different types of data transfer schemes, and memory concepts. Part III (Chapters 12–15) covers programmable interfacing chips with the help of extensive interfacing examples. Part IV (Chapters 16–18) deals with advanced processors—from 80186 to Pentium 4.

This well-organized and student-friendly text should prone to be an invaluable asset to the students as well as the practising engineers.

KEY FEATURES
- Gives elaborate programming examples to develop the analytical ability of students.
- Provides solved examples covering different types of typical interfacing problems to develop the practical skills of students.
- Furnishes chapter-end exercises to reinforce the understanding of the subject.

Contents: Preface. Acknowledgements. Architecture and Organization of Microprocessors and Microcomputers. Introduction to 8086. 8086 Based System. Instructions Set of 8086. Assembler Directives. Programming of 8086. Interrupts of 8086. Math Coprocessor 8087. Multiprocessing and Multiprogramming. Serial and Parallel Data Transfer. IO and Memory Interfacing. Programmable Peripheral Interfacing Chips. 8253/54 Programmable Timer. DMA Controller 8257 and 8237. Keyboard and Display Interfacing. 80186 and 80286 Microprocessors. Intel's 32-bit Microprocessors. Today's Processor's. Index.

Latest Print 2015 / 696 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4087-9 / ₹ 495.00 / (e-book also available)

MATHUR & PANDA

Microprocessors and Microcontrollers

SUNIL MATHUR, *Associate Professor, Department of Electronics and Communication Engineering, Maharaja Agrasen Institute of Technology, Guru Gobind Singh Indraprastha University, Delhi. He is a life member of Institution of Engineers (India) and Institute of Electronics and Telecommunication Engineers.*
JEEBANANDA PANDA, *Associate Professor, Department of Electronics and Communication Engineering, Delhi Technological University, Delhi.*

Primarily intended for diploma, undergraduate and postgraduate students of electronics, electrical, mechanical, information technology and computer engineering, this book offers an introduction to microprocessors and microcontrollers.

The book is designed to explain basic concepts underlying programmable devices and their interfacing. It provides complete knowledge of the Intel's 8085 and 8086 microprocessors and 8051 microcontroller, their architecture, programming and concepts of interfacing of memory, IO devices and programmable chips.

The text has been organized in such a manner that a student can understand and get well-acquainted with the subject, independent of other reference books and Internet sources. It is of greater use even for the AMIE and IETE students—those who do not have the facility of classroom teaching and laboratory practice.

The book presents an integrated treatment of the hardware and software aspects of the 8085 and 8086 microprocessors and 8051 microcontroller. Elaborated programming, solved examples on typical interfacing problems, and a useful set of exercise problems in each chapter serve as distinguishing features of the book.

Contents: Preface. Acknowledgements. **Part I**—Architecture and Organization of Microprocessor 8085. Instruction Set of 8085 Microprocessor. Instruction Timing and Operation of 8085 Microprocessor. Stack and Subroutine. Interrupts of 8085. **Part II**—Introduction to 8086. 8086 Based System. Assembler Directives. Instructions Set and Programming of 8086. Interrupts of 8086. IO and Memory Interfacing. **Part III**—Programmable Peripheral Interfacing Chips. Programmable Interval Timer and Interfacing with 8085 and 8086. DMA Controller 8257 and 8237. 8259A, Programmable Interrupt Controller (PIC). Keyboard and Display Interfacing. Serial and Parallel Data Transfer. **Part IV**—Introduction to Microcontroller 8051. Instructions Set of Microcontroller 8051. Programming and Interfacing of 8051. Answers. Index.

Latest Print 2016 / 800 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5231-5 / ₹ 595.00 / (e-book also available)

PAL

Microcontrollers: Principles and Applications

AJIT PAL, *Professor in the Department of Computer Science and Engineering at Indian Institute of Technology Kharagpur.*

This book gives a comprehensive coverage of different aspects of microcontroller-based system design and development in a generalized manner. Basic ideas and fundamental concepts common to all microcontrollers have been introduced before giving specific examples using the 8051 microcontroller, which is the most popular microcontroller in use today. Coverage of the three important issues such as hardware, software and hardware-software integration has been provided in a balanced manner. For easy understanding of the subject, a bottom-up approach has been followed.

The book is designed for the undergraduate students of electrical engineering, computer science and engineering, and electronics and communication engineering.

KEY FEATURES

- Provides many pedagogical features such as learning objectives, introduction, examples, summary, fill in the blanks and chapter-end exercises to assist teaching and learning.
- Pays special attention to the interfacing of I/O devices for human interaction, and I/O devices for process control and instrumentation, which are important in the context of embedded systems.
- Gives comprehensive information about development aids and troubleshooting techniques for the development of microcontroller-based systems.
- Includes a number of real-life application examples, with complete details of hardware and software implementation, after fabricating prototype models in the laboratory.

Contents: Preface. Introduction. Architecture of the Intel 8051. Instruction Set: Vocabulary of the Machine. Assembly Language Programming. Interfacing External Memory. Data Transfer Techniques and I/O Ports. Interfacing for Human Interaction. Interfacing of Transducers, Sensors and Actuators. Timer/Counter Operations. Serial Mode of Data Transfer. System Development and Development Aids. Application Examples. Index.

Latest Print 2014 / 392 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4392-4 / ₹ 350.00 / (e-book also available)

RAO

Embedded Systems

B. KANTA RAO, *Senior Professor, Department of Computer Science and Engineering, Gayatri College of Engineering, Visakhapatnam.*

Designed as a textbook for the undergraduate students of electronics and communication engineering, electronics and instrumentation engineering, computer science and engineering, information communication technology as well as for the postgraduate students of computer applications (MCA), it lays the foundation for all readers on all possible applications of embedded processors.

This text deals with some of the interesting processors that will enlighten the need for new instructions and fast program implementation. The processors covered are the classic 8051 family, ATmega family, PIC family and Texas 430 family along with a good introduction to ARM processors.

KEY FEATURES

- Well designed hardware–software integrated programs and exercises
- Examples for each processor instruction set
- Extensive discussion on classic 8051 family including all recent developments

Contents: Preface. Embedded Processor Architectures: An Overview. Intel 8051 Architecture (Classic Version). Programming. Communication Interfaces. Timers and Counters. Analog Subsystems in Embedded Processors. Advanced Research Microprocessor (ARM) Architecture. Advanced Embedded Systems: ATmega Processors. Microchip PIC Embedded Processor Family. Integrated Development Environment: Assembler and Simulation. Introduction to Real Time Systems. Appendices. Index.

Latest Print 2013 / 560 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4081-7 / ₹ 425.00 / (e-book also available)

SRINATH

8085 Microprocessor: Programming and Interfacing

N.K. SRINATH, *Professor and Head, Department of Information Science and Engineering, R.V. College of Engineering, Bangalore.*

This up-to-date and contemporary book is designed as a first level undergraduate text on microprocessors for the students of engineering (computer science, electrical,

electronics, telecommunication, instrumentation), computer applications and information technology. It gives a clear exposition of the architecture, programming and interfacing and applications of 8085 microprocessor. Besides, it provides a brief introduction to 8086 and 8088 Intel microprocessors.

The book focusses on:

- microprocessors starting from 4004 to 80586.
- instruction set of 8085 microprocessor giving the clear picture of the operations at the machine level.
- the various steps of the assembly language program development cycle.
- the hardware architecture of microcomputer built with the 8085 microprocessor.
- the role of the hardware interfaces: memory, input/output and interrupt, in relation to overall microcomputer system operation.
- peripheral chips such as 8255, 8253, 8259, 8257 and 8279 to interface with 8085 microprocessor and to program it for different applications.

Contents: Foreword. Preface. Acknowledgements. Introduction to Microprocessors. 8085 Microprocessor. Instruction Set [Intel 8085]. Fundamentals of Programming. Semiconductor Memory. Input/Output Interface. Programmable Peripheral Interface 8255A. Programmable Internal Timer 8253. Programmable Interrupt Controller 8259A. Programmable DMA Controller 8257. Serial Data Transfer. Programmable Keyboard/Display Interface (8279). 8086 Microprocessor Architecture. 8086 Pin-Configuration. Appendix. Index.

Latest Print 2014 / 348 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2785-6 / ₹ 295.00 / (e-book also available)

WADHWA

Microprocessor 8085: Architecture, Programming, and Interfacing

AJAY WADHWA, *Associate Professor, Department of Physics, SGTB Khalsa College, University of Delhi.*

This book is designed as a first-level introduction to Microprocessor 8085, covering its architecture, programming, and interfacing aspects. Microprocessor 8085 is the basic processor from which machine language programming can be learnt. The text offers a comprehensive treatment of microprocessor's hardware and software.

DISTINGUISHING FEATURES

- All the instructions of 8085 processor are explained with the help of examples and diagrams.
- Instructions have been classified into groups and their mnemonic hex codes have been derived.
- Memory maps of different memory sizes have been illustrated with examples.
- Timing diagrams of various instructions have been illustrated with examples.
- A large number of laboratory-tested programming examples and exercises are provided in each chapter.
- At the end of each chapter, numerous questions and problems have been given.
- Problems from previous years' question papers have been separately given in each chapter.
- More than 200 examples and problems have been covered in the entire text.

This book is designed for undergraduate courses in B.Sc. (Hons) Physics and B.Sc. (Hons) Electronics. It will also be useful for the students pursuing B.Tech. degree/diploma in electrical and electronics engineering.

Contents: Preface. Basic Computer Design. Microprocessor 8085 Architecture. Assembly Language Programming. Memory. Microprocessor—Timing and Control. Interfacing. Appendices. Index.

Latest Print 2012 / 172 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4013-8 / ₹ 150.00 / (e-book also available)

Mobile Computing

DASBIT & SIKDAR

Mobile Computing

SIPRA DASBIT, *Professor in the Department of Computer Science and Technology, Bengal Engineering and Science University, Shibpur.*

BIPLAB K. SIKDAR, *Assistant Professor in the Department of Computer Science and Technology at Bengal Engineering and Science University, Shibpur.*

This textbook provides students with a sound foundation in the concepts and applications of mobile computing. It discusses all the relevant topics in mobile computing in a clear and straightforward style.

The book begins with an introduction to the subject and then moves on to describe the fundamentals of wireless communication including a brief description of different modulation techniques. The text includes coverage of second generation (2G) cellular network together with its two important implementation standards GSM & IS-95; it also discusses WLL and WLAN. In addition, it presents a variety of data services available in the domain of mobile computing with other relevant issues. Finally, it gives a brief on UMTS, a representative of the third generation (3G) of cellular networks. The fundamental tenets of mobile computing, such as mobility management, channel assignment, protocols at air interface, and system design are carefully covered for all categories of wireless networks described here.

A perfect balance between theoretical aspects of mobile computing and its implementation standards has been maintained throughout the book. Many examples and exercises are included, which will help students prepare for examinations.

The book is intended primarily for students of B.E./B.Tech. of Computer Science and Engineering, Information Technology, Electronics and Communication Engineering, and related disciplines. It will also be useful

to the students of BCA/MCA and B.Sc./M.Sc. (Computer Science/Electronics).

Contents: Preface. Acknowledgements. Introduction. Wireless Wide Area Network (Cellular Network). Cellular Network Standards (GSM & IS-95). Wireless Metropolitan Area Network (Wireless Local Loop). Wireless Local Area Network. Wireless Data Service. Overview of Third Generation Cellular Network (UMTS). Index.

Latest Print 2009 / 192 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-3952-1 / ₹ 175.00 / (e-book also available)

PATTNAIK & RAJIB MALL

Fundamentals of Mobile Computing, 2nd ed.

PRASANT KUMAR PATTNAIK, *Professor at the School of Computer Engineering, KIIT University, Bhubaneswar.*
RAJIB MALL, *Professor, Department of Computer Science and Engineering, IIT Kharagpur.*

This textbook, now in its Second Edition, addresses the rapid advancements to the area of mobile computing. Almost every chapter has been revised to make the book up to date with the latest developments. It covers the main topics associated with mobile computing and wireless networking at a level that enables the students to develop a fundamental understanding of the technical issues involved in this new and fast emerging discipline.

This book first examines the basics of wireless technologies and computer communications that form the essential infrastructure required for building knowledge in the area of mobile computations involving the study of invocation mechanisms at the client end, the underlying wireless communication, and the corresponding server-side technologies. It includes coverage of development of mobile cellular systems, protocol design for mobile networks, special issues involved in the mobility management of cellular system users, realization and applications of mobile ad hoc networks (MANETs), design and operation of sensor networks, special constraints and requirements of mobile operating systems, and development of mobile computing applications. Finally, an example application of the mobile computing infrastructure to M-commerce is described in the concluding chapter of the book.

The book is suitable for a one-semester course in mobile computing for the undergraduate students of Computer Science and Engineering, Information Technology, Electronics and Communication Engineering, Master of Computer Applications (MCA), and the undergraduate and postgraduate science courses in computer science and Information Technology.

KEY FEATURES

- Provides unified coverage of mobile computing and communication aspects
- Discusses the mobile application development, mobile operating systems and mobile databases as part of the material devoted to mobile computing
- Incorporates a survey of mobile operating systems and the latest developments

Contents: Preface. Preface to the First Edition. Basics of Communication Technologies. Introduction to Mobile Computing and Wireless Networking. MAC Protocols. Mobile Internet Protocol. Mobile Transport Layer. Mobile Databases. Mobile Ad Hoc Networks. Wireless Sensor Networks. Operating Systems for Mobile Computing. Mobile Application Development and Protocols. Mobile Commerce. Glossary. Index.

Latest Print 2017 / 280 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-5181-3 / ₹ 250.00 / (e-book also available)

Object-Oriented Programming

GOPALAN, SIVASELVAN & MALA

Object-Oriented Programming Using C++

N.P. GOPALAN, *Professor, Department of Computer Applications, National Institute of Technology Tiruchirapalli.*
B. SIVASELVAN, *Assistant Professor, Indian Institute of Information Technology, Design and Manufacturing Kancheepuram, IIT Madras Campus, Chennai.*
C. MALA, *Associate Professor, Department of Computer Science and Engineering, National Institute of Technology Tiruchirapalli.*

C++ is a popular object-oriented programming (OOP) language for developing high-performance computer applications. This text explores the various key concepts of object-oriented programming such as encapsulation, abstraction, overloading, inheritance, polymorphism, virtual functions, templates and exception handling. Since C++ is an extension of standard version of C, a detailed treatment of C is also given to address the needs of the first-time programmers not acquainted with the features set of C.

The book discusses in detail certain concepts that have remained grey for some time now. In this context the notion of header files inclusion and its internals, and data structures that support features such as polymorphism are explained in detail. Equal emphasis is placed on syntaxes and the semantics behind the working of each feature of the language. Programming is not just syntaxes and the book attempts to present programming features in the right way by laying emphasis on concepts, internals, and illustrating such features by real-time programming examples as well. Programming is an art much like mathematics and is best appreciated and understood only if the conceptual side of the features is put forth as opposed to the conventional view of syntax emphasis.

This book will be useful for the students of:

- All engineering disciplines
- Computer Applications
- Information Communication Technology (ICT)

Contents: Preface. Introduction to C/C++ Programming. Control Structures. Functions. Arrays. Object-Oriented Programming [C++]. Operator Overloading. Inheritance.

Virtual Functions and Polymorphism. Templates and Exception Handling. Index.

Latest Print 2010 / 204 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3923-1 / ₹ 175.00 / (e-book also available)

JAGADEV, RATH & DEHURI

Object-Oriented Programming Using C++

ALOK KUMAR JAGADEV, *Assistant Professor, Department of Computer Science and Engineering, Krupajal Engineering College, Bhubaneswar.*
AMIYA KUMAR RATH**,** *Professor, Department of Computer Science and Engineeing, Krupajal Engineering College, Bhubaneswar.*
SATCHIDANANDA DEHURI**,** *Reader, Department of Information and Communication Technology, Fakir Mohan University, Balasore.*

This compact book presents a clear and thorough introduction to the object-oriented paradigm using the C++ language. It introduces the readers to various C++ features that support object-oriented programming (OOP) concepts. In an easy-to-comprehend format, the text teaches how to start and compile a C++ program and discusses the use of C++ in OOP. The book covers the full range of object-oriented topics, from the fundamental features through classes, inheritance, polymorphism, template, exception handling and standard template library.

KEY FEATURES

- Includes several pictorial descriptions of the concepts to facilitate better understanding.
- Offers numerous class-tested programs and examples to show the practical application of theory.
- Provides a summary at the end of each chapter to help students in revising all key facts.

The book is designed for use as a text by undergraduate students of engineering, undergraduate and postgraduate students of computer applications, and postgraduate students of management.

Contents: Preface. Object-Oriented Design. How to Start C++ Program. Data Types, Expressions and Control Structures. Functions. Classes and Abstraction. Constructors and Destructors. Operator Overloading and User-Defined Conversions. Inheritance. Virtual Function and Polymorphism. Standard Input/Output Operations. File Input/Output. Template. Exception Handling. Standard Template Library. Bibliography. Index.

Latest Print 2010 / 352 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3085-6 / ₹ 250.00 / (e-book also available)

JANA

C++ and Object-Oriented Programming Paradigm, 3rd ed.

DEBASISH JANA, *Manager, Software Development with TEOCO Software, Kolkata.*

Earlier two editions of this practice-oriented book have been well accepted over the past decade by students, teachers and professionals. Inspired by the avid response, the author is enthused to bring out the third edition, improving upon the concepts with glimpses of C++11 features. This book presents a unique blending of C++ as one of the most widely used programming languages of today in the backdrop of object-oriented programming (OOP) paradigm and modelling. Along with an overview of C++ programming and basic object-oriented (OO) concepts, it also provides the standard and advanced features of C++ for further study. The text establishes the philosophy of OOP by highlighting the core features of C++ and demonstrating the semantic differences between the procedural paradigm of C and the object-oriented paradigm of C++.

The present edition updates and elaborates on the following topics:

- Reference data types
- Inline functions
- Parameter passing–passing pointers by value as well as by reference
- Polymorphism: overloading and overriding
- Lambda expressions and anonymous functions
- Rvalue reference, move constructor and assignment operator
- Phases of software development
- UML

Primarily intended as a text for undergraduate and postgraduate students of engineering, computer applications and management, and also to practicing professionals, the book should also prove to be a stimulating study as a reference for all those who have a keen interest in the subject.

Contents: Preface. Acknowledgements. Overview. Declarations and Expressions. Statements. Array, Pointer and Structure. Functions. Preprocessor Directives. Standard C Library Functions and Standard Header Files. Data Abstraction through Classes and User-Defined Data Types. Operator Overloading. Class Relationships. Advanced Concepts. The Standard Library in C++. Data Structures and Applications in C++. Object-Oriented Design and Modeling. Unified Modeling Language. Problems (For Laboratory Workouts). Glossary. Bibliography. Index.

Latest Print 2014 / 568 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5033-5 / ₹ 495.00 / (e-book also available)

JANA

Java and Object-Oriented Programming Paradigm

DEBASISH JANA, *Manager, Software Development with TEOCO Software, Kolkata.*

This practice-oriented text explores the intricacies of Java language in the light of different procedural and object-oriented paradigms. It is primarily focussed on the Object-Oriented Programming (OOP) paradigm using Java as a language.

The text begins with the programming overview and introduces the reader to the important object-oriented (OO) terms. It then deals with Java development as well as runtime environment set-up along with the steps of compilation and running of a simple program. The text explains the philosophy of Java by highlighting its core features and demonstrating its advantages over C++. Besides, it covers GUI through Java applets, Swing, as well as concurrency handling and synchronization through threads. A chapter is exclusively devoted to fundamental data structures and their applications in Java. The book shows how Unified Modeling Language (UML) represents objects, classes, components, relationships, and architectural design.

This comprehensive and student friendly book is intended as a text for the students of computer science and engineering, computer applications (BCA/MCA), and IT courses.

KEY FEATURES

- Shows the practical application of theories through several examples and program source codes.
- Provides end-of-chapter review questions and end-of-book laboratory workouts for easy assimilation of concepts learned and self-evaluation.
- Covers the features of latest version of Java, i.e. Java™ 2 Platform Standard Edition (J2SE) 5.0.

Contents: Preface. Acknowledgements. Overview. Data Types and Expressions. Statements. Arrays. Methods or Functions. Data Abstraction Through Classes. Class Relationships. Multithreading. Java Standard Packages and Classes. Input and Output. Applet. Swing. Data Structures and Applications in Java. Object-Oriented Design and Modeling. Unified Modeling Language. Additional Problems. Appendix. Index.

Latest Print 2014 / 652 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-2775-7 / ₹ 450.00 / (e-book also available)

MATHA

Object-Oriented Analysis and Design Using UML: An Introduction to Unified Process and Design Patterns

MAHESH P. MATHA, *Assistant Professor, Department of Computer Science (Postgraduate section), Parvatibai Chowgule College of Arts and Science, Goa.*

A modern computer program, such as the one that controls a rocket's journey to moon, is like a medieval cathedral—vast, complex, layered with circuits and mazes. To write such a program, which probably runs into a hundred thousand lines or more, knowledge of an object-oriented language like Java or C++ is not enough. Unified Modelling Language (UML), elaborated in detail in this book, is a methodology that assists in the design of software systems.

The first task in the making of a software product is to gather requirements from the client. This well-organized and clearly presented text develops a formal method to write down these requirements as Use Cases in UML. Besides, it also develops the concepts of static and dynamic modeling and the Unified Process that suggests incremental and iterative development of software, taking client feedback at every step. The concept of Design Patterns which provide solutions to problems that occur repeatedly during software development is discussed in detail in the concluding chapters. Two appendices provide solutions to two real-life problems.

Case Studies, mapping of examples into Java code that are executable on computers, summary and Review Questions at the end of every chapter make the book reader friendly.

The book will prove extremely useful to undergraduate and postgraduate students of Computer Science, Information Technology, and Master of Computer Application (MCA). It will also benefit professionals who wish to sharpen their programming skills using UML.

Contents: Preface. Acknowledgements. Introduction. Use Case Modelling. Static Modelling using Class Diagrams. Interaction Diagrams. Dynamic Modelling Using State and Activity Diagrams. The Unified Process of Software Development. Architectural Modelling. Design Patterns (Creational). Design Patterns (Structural). Design Patterns (Behavioural). Appendix A: Simulation of Cell Phone. Appendix B: Social Networking Site. Glossary. Visual Glossary. Bibliography. Index.

Latest Print 2014 / 364 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3322-2 / ₹ 350.00 / (e-book also available)

PRABHU

Object-Oriented Database Systems: Approaches and Architectures, 3rd ed.

C.S.R. PRABHU, *Director General (Retd.), National Informatics Centre (NIC), New Delhi.*

This well-received book, now in its third edition, is a comprehensive presentation of the fundamentals of object-oriented database systems (OODBMS). It provides extensive coverage of the different approaches to object data management, including the three major approaches—semantic database systems approach, object-oriented programming language extension approach, and the relational extension approach—as well as the

various types of architectures of object-oriented database systems. The book discusses all recent developments in this field, such as the emergence of Java as the dominant object-oriented programming language—resulting in upcoming OODBMS products such as Ozone—and the provision of object-oriented database features in object-relational database systems (ORDBMS) products such as Oracle 9i and DB2.

The new edition provides an extensive discussion of PostgreSQL, a popular open source object-oriented database system which has emerged as a viable alternative to expensive commercial database systems such as Oracle.

The book is extensively illustrated, which enables students to develop a firm grasp of the underlying concepts. The chapter-end exercises help in testing the students' comprehension of the fundamental principles.

The book is primarily meant for students of IT-related programmes having courses in database systems. Computer professionals will also find the book immensely useful.

Contents: Foreword. Preface. Preface to the First Edition. Acknowledgements. Introduction. Semantic Database Models and Systems. Object-oriented Database Systems. Relational Extensions. Object/Relational Systems (ORDBMSs). Standards for OODBMS products and Applications. Suggested Further Reading. Index.

Latest Print 2011 / 264 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4093-0 / ₹ 250.00 / (e-book also available)

SAMANTA

Object-Oriented Programming with C++ and Java

D. SAMANTA, *Associate Professor at the School of Information Technology, Indian Institute of Technology Kharagpur.*

This book is designed to introduce object-oriented programming (OOP) in C++ and Java, and is divided into four areas of coverage:

Preliminaries: Explains the basic features of C, C++, and Java such as data types, operators, control structures, storage classes, and array structures.

Part I: Covers classes, objects, data abstraction, function overloading, information hiding, memory management, inheritance, binding, polymorphism, class template using working illustrations based on simple concepts.

Part II: Discusses all the paradigms of Java programming with ready-to-use programs.

Part III: Contains eight Java packages with their full structures.

The book offers straightforward explanations of the concepts of OOP and discusses the use of C++ and Java in OOP through small but effective illustrations. It is ideally suited for undergraduate/postgraduate courses in computer science. The IT professionals should also find the book useful.

Contents: Preface. PRELIMINARIES—Basics of C/C++/Java. PART I—Getting Started. Overloading and Information Hiding. Memory Management in C++. Inheritance. Binding and Polymorphism. Generic Facility. File Handling in C++. PART II—Fundamentals of Java. Programming with Java. Object-Oriented Machine in Java. Interface and Package. Exception Handling in Java. Thread and Multithreading. Application Development with Java. Java Input/Output Networking. Java Multimedia. PART III—The Java Applet Package. The Java Language Package. The Java Utility Package. The Abstract Window Toolkit (AWT) Package. The AWT Image Package. The AWT Peer Package. The Java I/O Package. The Java Networking Package.

Latest Print 2009 / 344 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-1620-1 / ₹ 225.00

SARANG

Object-Oriented Programming with C++, 2nd ed.

POORNACHANDRA SARANG *has been a Visiting Professor of Computer Engineering at the University of Notre Dame, USA and currently holds a position of adjunct Faculty at the Department of Computer Science, University of Mumbai.*

Written in a style that is both engaging and understandable, this second edition benefits from Dr. Sarang's many years of teaching computer science students as well as providing consultancy is designing and architecting programming solutions. It is an ideal text for beginners, developed to meet the needs of the students for a comprehensive introduction to object-oriented programming using C++.

The book covers the full range of object-oriented topics, from the fundamental features through classes, inheritance, polymorphism, and templates. It uses a practical problem-solving approach to drive home the essential concepts and principles of object-oriented programming, helping the readers to build a strong foundation in design and implementation of software solutions.

KEY FEATURES OF THE NEW EDITION

- Provides a full chapter on string class
- Several newly added programming examples
- Shows the screen output of each program for ease of learning
- Provides support for both Microsoft Visual C++ and Turbo C++ so that the students can run the programs in an environment of their choice

This book is appropriate for learning C++ by:

- students of computer science
- students of computer applications

- students of Information Communication Technology (ICT)
- students of all engineering disciplines

Contents: Preface. Preface to the First Edition. Acknowledgements. Object-Oriented Programming Concepts. Language Constructs. Advanced Constructs. Classes in C++. Member Functions. Operator Overloading. Constructors and Destructors. Inheritance. Multiple Inheritance. Polymorphism. Handling Exceptions. Templates. C++ I/O. Strings. Appendices. Index.

Latest Print 2011 / 372 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3670-4 / ₹ 250.00 / (e-book also available)

SOMASHEKARA, et al.

Object-Oriented Programming with C++, 2nd ed.

M.T. SOMASHEKARA, *Department of Computer Science and Applications, University of Bangalore.*
D.S. GURU, *Department of Studies in Computer Science, University of Mysore.*
H.S. NAGENDRASWAMY, *Department of Studies in Computer Science, University of Mysore.*
K.S. MANJUNATHA, *Department of Computer Science, Maharani's Science College, Mysore.*

This book is the second edition of M.T. Somashekara's earlier book titled Programming in C++, under the new title Object-Oriented Programming with C++. In consonance with the new title, two chapters—one explaining the concepts of object-oriented programm-ing and the other on objectoriented software development—have been added, respectively, at the beginning and end of the book.

Substantial improvements have been effected in all chapters on C++. The book also carries a new chapter titled Standard Template Library.

The book covers the C++ language thoroughly, from basic concepts through advanced topics such as encapsulation, polymorphism, inheritance, and exception handling. It presents C++ in a pedagogically sound way, giving many program examples to highlight the features and benefits of each of its concepts.

The book is suitable for all engineering and science students including the students of computer applications for learning the C++ language from the first principles.

KEY FEATURES

- Logical flow of concepts starting from the preliminary topics to the major topics.
- Programs for each concept to illustrate its significance and scope.
- Complete explanation of each program with emphasis on its core segment.
- Chapter-end summary, review questions and programming exercises.
- Exhaustive glossary of programming terms.

Contents: Preface. Object-Oriented Programming (OOP)—An Overview. C++ Language—An Overview. C++ Language—Preliminaries. Operators and Expressions. Selection. Iteration. Functions. Arrays. C—Strings. Structures and Unions. Pointers. The C++ Preprocessor. Classes and Objects. Constructors and Destructors. Operator Overloading and Type Conversions. Inheritance. I/O Streams. File Handling. String Handling. Exception Handling. Templates. New Features of C++. Standard Template Library. Object-Oriented Software Development. Appendix A: Mathematical Functions. Appendix B: Character Test Functions. Glossary. Bibliography. Index.

Latest Print 2014 / 704 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4462-4 / ₹ 475.00 / (e-book also available)

Operating Systems

BHATT

Introduction to Operating Systems, An: Concepts and Practice, 4th ed.

PRAMOD CHANDRA P. BHATT, *has been a consultant to several companies (Intel, IBM, Accenture, Philips, Sharp, Satyam, ABB) and Advisor to the India Semiconductor Association.*

Divided into four parts—OS concepts, practice, architecture of contemporary operating systems and projects on OS—this **fourth edition** offers a comprehensive treatment of operating systems. While Unix and Windows are covered in good detail, this edition emphasizes changes that have occurred in design technology and pattern of use. The new edition, comes with focus on Linux kernel, VxWorks and operating systems for handheld systems. These changes make the book contemporary. A set of mini-projects have been incorporated to help students to put to practice the mechanisms that they have learned. The book is intended for the undergraduate students of computer science and engineering, computer applications, and information technology.

NEW IN THIS EDITION

- A chapter on File Systems has been thoroughly updated and is included with flash memory
- The chapter on IO has been updated to include some preferred bus interfaces and protocols
- The chapters on interprocess communication and distributed computing have been revised and rewritten in parts
- The Chapter on Linux have been revised and rewritten, where the emphasis has been shifted to kernel description and programming.
- An Appendix on Time has been added.

Contents: Foreword. Preface. Preface to First Edition. Part I—OS: CONCEPTS—Introduction to Operating Systems. File Systems and Management. Process and Process Management. Memory Management. Input Output (IO) Management. Resource Sharing and Management. Interprocess Communication. Distributed Computing. Real-Time Operating Systems

and Microkernels. OS and Security. Recent Trends in OS. Part II—OS: UNIX IN PRACTICE—Unix Primer. Search and Sort Tools. AWK Tool in Unix. Shell Scripts in Unix. Programming with Threads. Unix Kernel Architecture. Make Tool in Unix. Some Other Tools in Unix. Source Code Control System in Unix. X-Windows in Unix. System Administration in Unix. Part III—CONTEMPORARY OPERATING SYSTEMS—Linux. Windows Operating Systems. Vista Operating System. VxWorks Operating System. Operating Systems for Handheld Systems. Part IV—PROJECT AND QUESTION BANK—Case Studies and Project Ideas. Question Bank. References. Index.

Latest Print 2014 / 852 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4836-3 / ₹ 450.00 / (e-book also available)

CHANDRA MOHAN

Operating Systems

I. CHANDRA MOHAN, *was Professor and Head, Department of Mathematics, S.V. University, Tirupati.*

Operating System, an integral part of any computer, is the interface between the computer users and the hardware. This comprehensive book provides the readers with the basic understanding of the theoretical and practical aspects of operating systems.

The text explains the operating systems and components of operating systems including attributes of Linux and Unix operating systems. It also discusses Android operating system and Tablet computer. The book explicates in-depth the concepts of process, threads/multithreading and scheduling and describes process synchronization, deadlocks and memory management including file access methods and directory structure. In addition, it also describes security and protection along with distributed file systems.

The book is designed as a textbook for undergraduate students of Electronics and Communication Engineering, Computer Science and Engineering, and Information Technology as well as postgraduate students of computer applications and computer science.

Contents: Preface. Operating Systems—An Overview. Process Management. Concurrency and Process Synchronization. Deadlocks. Memory Management. Files System Interface and Implementation. Protection and Security. Distributed Systems. Index.

Latest Print 2013 / 236 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4726-7 / ₹ 250.00 / (e-book also available)

CRICHLOW

Distributed Systems: Computing Over Networks, 2nd ed.

JOEL M. CRICHLOW, *Associate Professor of Computer Science at Rowan University, Glassboro, New Jersey (U.S.A.).*

Intended as a textbook for undergraduate students of computer science, computer science and engineering, and information technology for a course on distributed systems/operating systems, this up-to-date text provides a thorough understanding of the fundamental principles and technologies pertinent to the design and construction of the distributed systems.

Beginning with an introduction to the subject, the book discusses the techniques of software and network architectures and presents the issues pertaining to the handling and accessing of resources. This also focuses on major application areas. Finally, the book provides the examples for explaining the concepts discussed.

The book would also be useful to postgraduate students of computer science, computer science and engineering, and information technology as well as to postgraduate students of computer applications. The book can also be used by software engineers, programmers, analysts, scientists and researchers for reference.

NEW TO THIS EDITION

This second edition highlights some of the latest distributed system technologies. It includes discussions on:

- Cloud Computing
- Social Networks
- Big Data

In addition to this, It presents some current key software tools, viz. BitTorrent, Amazon Dynamo, Amazon DynamoDB, Apache Cassandra, Apache Server, Apache Zookeeper, Google BigTable and others.

KEY FEATURES

- Introduces Internet, The World Wide Web, Web services and network technologies, viz. WAN, LAN and MAN.
- Discusses software development tools, like PVM, MPI, DCE, CORBA and the Globus toolkit.
- Provides discussions on network protocol suites, i.e. TCP/IP, SMTP and HTTP.
- Deals with grid computing, wireless computing and client-server model.
- Presents applications of NFS, Coda, Microsoft SQL Server, Oracle, Amoeba, Chorus, Mach, Windows NT and Orbix technologies.
- Emphasizes the programming languages, like Ada, C++ and Java.

Contents: Preface. Introduction. Software Architecture for Distributed Systems. Network Architecture for Distributed Systems. Managing Distributed Resources. Accessing Distributed Resources. Major Application Areas for Distributed Systems. Some Examples of Distributed Systems. Glossary. Index.

Latest Print 2014 / 208 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4877-6 / ₹ 225.00 / (e-book also available)

GOPALAN & SIVASELVAN

Beginner's Guide to UNIX, A

N.P. GOPALAN, *Professor in the Department of Computer Applications, National Institute of Technology (NIT), Tiruchirappalli, Tamil Nadu.*
B. SIVASELVAN, *Assistant Professor, Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram, IIT Madras Campus, Chennai.*

Operating system (OS) forms the interface between an end user and a system hardware. UNIX as an operating system remains the actual cost-free and user-friendly system hardware with regard to programming features. This text provides, in an easy-to-understand language, an in-depth analysis of various UNIX features supported as commands, highlighting their uniqueness and advantages in relation to Windows OS.

The text begins with a brief account of what an operating system is. Then it goes to give the various general purpose UNIX commands and emergency commands with the command syntax. Besides, the text explores files and processes, the major building blocks of UNIX OS, their security features, and system calls. UNIX shell programming, vi editor—one of the powerful editors supported by UNIX OS—and communicating features and their commands are also dealt with at length. The book concludes with a discussion on file transfer, UNIX filters, PERL manipulation, administrator and networking commands.

KEY FEATURES

- Ready to refer handbook for UNIX commands/features.
- Commands illustrated for better understanding and visualization of concepts.
- Administrator-related commands and responsibilities described with clarity.

This concise and compact text is well suited for undergraduate and postgraduate students pursuing courses in Computer Science and Engineering, and Computer Applications (BCA and MCA). Besides, Software Engineers working on UNIX/Linux-based applications would considerably benefit from this book.

Contents: Preface. Introduction to Operating System. Encounter with UNIX Commands. General Purpose Commands. The UNIX Files System. UNIX Files Continued. UNIX Files: Security Features. The VI (vi) Editor. UNIX Shell. UNIX Processes. Setting Up the Workspace and Environment. Communication Features of UNIX. UNIX Files: Advanced Features. UNIX Filters. The grep and sed filters in UNIX. The Shell Programming in UNIX. UNIX Administrators Commands. UNIX Networking Commands. The AWK Filters. PERL Manipulation. Advanced Features and Commands with vi Editor. UNIX Files Related System Calls. UNIX Process Related System Calls. Appendix. Index.

Latest Print 2009 / 288 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3786-2 / ₹ 195.00 / (e-book also available)

JAMES

Linux: Learning the Essentials

K.L. JAMES, *Technical Officer at the Computer Centre in University of Kerala, Thiruvananthapuram.*

This book aims at providing a thorough understanding of the essentials and the workings of Linux Operating System (OS). It explores the technicalities of this free and open source OS so as to enable readers to harness the full power of Linux.

The text gives a methodical insight into Linux. Beginning with an introduction to Linux, the book discusses its salient features, different stages of its development, its basic operations and installation steps, and then describes the desktop environments, file management, administration, and basic Linux commands. In addition, chapters are written on different applications of Linux such as graphics, audio/video, gaming and internet, along with their usage details.

Presented in a simple and engaging style, the book is ideal for all computer courses covering the fundamentals of the Linux Operating System, or where Linux forms the core subject. It is ideally suited for self-learning by beginners who can acquire skills in Linux OS in their own desktop environment at home.

KEY FEATURES

1. Gives a comprehensive understanding and working details of Linux.
2. Devotes exclusive chapters on Gimp Image Editor and OpenOffice.org Applications.
3. Provides step-by-step instructions on essential applications used in Linux to help gain hands-on experience.

Contents: Preface. An Introduction to Linux. Linux Distributions and Installation. Linux Desktop Environments. Getting Started in Linux. Managing Linux Files and Folders. Linux Administration Basics. Command Line Operations and Shell Scripts. Linux Text Editors. Linux Graphics Applications. Linux Audio and Video Applications. Linux Gaming Applications. Networking and Using the Internet. Applications Development in Linux. Gimp Image Editor. OpenOffice.org Applications. Index.

Latest Print 2014 / 336 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4475-4 / ₹ 350.00 / (e-book also available)

PAL CHOUDHURY

Operating Systems: Principles and Design

PABITRA PAL CHOUDHURY, *faculty at Applied Statistics Unit, Indian Statistical Institute, Kolkata.*

The development in operating systems (OS) in the past few decades has brought to focus the concepts of process concurrency, low power design, security, etc. along with a refined and matured approach for conventional topics like processes, intercepts and semaphores. This well-

organized and comprehensive book, written in an easy-to-understand language, provides a deep insight into the working of an operating system, which is essentially a concurrent program, and strikes a fine balance between theory and practice.

The text provides the program design illustration and guidance along with new concepts. It gives an in-depth analysis of the fundamental concepts of an OS as an interrupt driven program whose basic constituents are the processes giving rise to a concurrent program. Further, the book gives a comprehensive coverage of such topics as CPU scheduling, device scheduling, deadlocks, memory management, file system, and the considerations of the security of the whole system. The programs discussed in the text are in C language and have been successfully run and tested in the Linux operating system.

KEY FEATURES

- Devotes separate chapters to device management, file management, and low power system design.
- Discusses ReiserFs, a file system (considered to be an asset), which is given as an Appendix to Chapter 10.
- Includes a detailed discussion on how a programmer can guard against hacking Linux and its clones.

This student friendly book, with profuse use of illustrative programs, is intended as a text for undergraduate and postgraduate students pursuing courses in Computer Science and Engineering, Information Technology, Computer Applications (BCA, MCA), and Computer Science (B.Sc. and M.Sc.). Besides, students from other engineering streams who wish to keep themselves abreast of operating systems would also find the text immensely valuable. Finally, the book should serve as a valuable reference for scientists and researchers in the field.

Contents: Preface. Acknowledgement. Introduction to the Operating System. OS Prerequisites. Concurrent Processing. Scheduling. Discussion on Concurrency Control. Deadlock. Main Memory Management. Virtual Memory Technique. Spooler and Disk Scheduling. File System Architecture. Device Driver for Operating System. Linux Kernel and Security. Role of OS towards Low Power Design. Bibliography. Index.

Latest Print 2010 / 656 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3811-1 / ₹ 325.00 / (e-book also available)

SINHA

Distributed Operating Systems: Concepts and Design

PRADEEP K. SINHA, *Centre for Development of Advanced Computing (C-DAC), Pune.*

This highly praised book in communications networking from IEEE Press, is now available in the Eastern Economy Edition.

This is a non-mathematical introduction to Distributed Operating Systems explaining the fundamental concepts and design principles of this emerging technology. As a textbook for students and as a self-study text for systems managers and software engineers, this book provides a concise and an informal introduction to the subject.

Each chapter addresses de-facto standards, popular technologies, and design principles applicable to a wide variety of systems. Complete with chapter summaries, end-of-chapter exercises and bibliographies, the book concludes with a set of *case studies* that provide *real-world* insights into four distributed operating systems. The reader will find comprehensive coverage of all major issues in the field:

- Inter-process communication
- Distributed shared memory
- Synchronization
- Resource and process management
- File management
- Naming and security
- A multitude of design options, and more

Contents: Preface. Acknowledgments. Abbreviations and Acronyms. Fundamentals. Computer Networks. Message Passing. Remote Procedure Calls. Distributed Shared Memory. Synchronization. Resource Management. Process Management. Distributed File Systems. Naming. Security. Case Studies. Index.

Latest Print 2014 / 764 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-1380-4 / ₹ 450.00 / (e-book also available)

SRIRENGAN

Understanding UNIX

K. SRIRENGAN, *formerly Professor, and Head of Electronics Engineering Department and of Computer Centre, TTTI, Chennai.*

This compact and practice-oriented text covers features of UNIX as an operating system and classifies the entire UNIX commands into 15 categories. Separate chapters are devoted to essential commands for: interacting with UNIX, handling files and directories, security, mail and remote communication, UNIX enhancement, and system administration under SCO UNIX followed by troubleshooting hints for super users.

There is an exhaustive coverage for system adminis-tration of UNIX system, generally available under all versions and releases of UNIX, particularly from AT&T UNIX to system V release 3.0.

The book is ideally suited for the undergraduate and diploma level students of computer science and computer application courses.

KEY FEATURES

- Provides system commands and related responses.
- Explains the basic principles of shell programming and gives worked out examples and problems based on these.
- Provides summary, review questions and problem assignments in each chapter.

- Includes a quick reference guide for the important commands and controls of "vi" editor, and SCO sysadmsh menu chart.

Contents: Preface. Operating Systems. Overview of UNIX. Structure of UNIX Operating System. Classification of UNIX Commands. Interaction with UNIX. Editors and Compilers for UNIX. Handling Files. Handling Directories. Communication. Administering UNIX Systems. Shell Programming. System Administration with SCO. Troubleshooting Hints for Super Users. UNIX Servers—Selection of the Right Hardware. Appendices. Index.

Latest Print 2013 / 216 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-1489-4 / ₹ 195.00

Open Source Software

RAO

Fundamentals of Open Source Software

M.N. RAO, *Director and Professor of Research & Development Centre, CSE Department, SCET Engineering College.*

Free Open Source Software have been growing enormously in the field of information technology. Open Source Software (OSS) is a software whose source code is accessible for alteration or enrichment by other programmers. This book gives a detailed analysis of open source software and their fundamentals, and so is meant for the beginners who want to learn and write programs using Open Source Software. It also educates on how to download and instal these open source free software in the system.

The topics covered in the book broadly aims to develop familiar Open Source Software (OSS) associated with database, web portal and scientific application development. Software platforms like, Android, MySQL, PHP, Python, PERL, Grid Computing, and Open Source Cloud, and their applications are explained through various examples and programs. The platforms like OSS and Linux are also introduced in the book.

Recapitulation given at the end of each chapter enables the readers to take a quick revision of the topics. Numerous examples in the form of programs are given to enable the students to understand the theoretical concepts and their applicative knowledge.

The book is an introductory textbook on Open Source Software (OSS) for the undergraduate students of Computer Science Engineering and postgraduate students of Computer Application.

SALIENT FEATURES

- The procedure for installing software (Linux, Android, PHP, MySQL, Perl, and Python) both in Linux and Windows operating systems are discussed in the book.
- Numerous worked out example programs are introduced.
- Inclusion of several questions drawn from previous question papers in chapter-end exercises.

Contents: Preface. Acknowledgements. An Introduction to OSS. Linux Basics. Android. PHP Basics. PHP Advanced. MySQL Database. Python Basics. Python Advanced. PERL (Practical Extraction and Report Language). Open Source Grid Computing. Open Source Cloud. Index

Latest Print 2014 / 316 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5012-0 / ₹ 375.00 / (e-book also available)

Parallel Computing

BASU

Parallel and Distributed Computing: Architectures and Algorithms

S.K. BASU, *Professor in the Department of Computer Science, Banaras Hindu University, Varanasi.*

This concise text is designed to present the recent advances in parallel and distributed architectures and algorithms within an integrated framework. Beginning with an introduction to the basic concepts, the book goes on discussing the basic methods of parallelism exploitation in computation through vector processing, super scalar and VLIW processing, array processing, associative processing, systolic algorithms, and dataflow computation. After introducing interconnection networks, it discusses parallel algorithms for sorting, Fourier transform, matrix algebra, and graph theory. The second part focuses on basics and selected theoretical issues of distributed processing. Architectures and algorithms have been dealt in an integrated way throughout the book. The last chapter focuses on the different paradigms and issues of high performance computing making the reading more interesting.

This book is meant for the senior level undergraduate and postgraduate students of computer science and engineering, and information technology. The book is also useful for the postgraduate students of computer science and computer application.

KEY FEATURES

- Each chapter is explained with examples (or example systems as the case may be) to make the principles/ methods involved easily understandable.
- Number of exercises are given at the end of each chapter for helping the reader to have better understanding of the topics covered.
- A large number of journal articles are highlighted to help the students interested in studying further in this field.

Contents: Preface. PART A—Introduction. Vector Processing. Superscalar and VLIW Processing. Array Processing. Data Flow Computation. Associative Processing. Systolic Computation. Multistage Interconnection Network. Paradigms for Parallel Processing. Multiprocessor Algorithms. Parallel Sorting. Fourier Transform. Matrix Computation. PART B—Distributed Processing. Selected Issues in Distributed Processing. High Performance Computing: Paradigms and Issues. Index.

Latest Print 2016 / 408 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5212-4 / ₹ 450.00 / (e-book also available)

RAJARAMAN & MURTHY

Parallel Computers: Architecture and Programming, 2nd ed.

V. RAJARAMAN *is Honorary Professor in the Supercomputer Education and Research Centre, Indian Institute of Science Bangalore.*

C. SIVA RAM MURTHY *is the Richard Karp Institute Chair Professor of Computer Science and Engineering at the Indian Institute of Technology Madras, Chennai. Until recently he held the Indian National Academy of Engineering Chair Professorship.*

Today all computers, from tablet/desktop computers to super computers, work in parallel. A basic knowledge of the architecture of parallel computers and how to program them, is thus, essential for students of computer science and IT professionals.

In its second edition, the book retains the lucidity of the first edition and has added new material to reflect the advances in parallel computers. It is designed as text for the final year undergraduate students of computer science and engineering and information technology. It describes the principles of designing parallel computers and how to program them. This second edition, while retaining the general structure of the earlier book, has added two new chapters, 'Core Level Parallel Processing' and 'Grid and Cloud Computing' based on the emergence of parallel computers on a single silicon chip popularly known as multicore processors and the rapid developments in Cloud Computing. All chapters have been revised and some chapters are re-written to reflect the emergence of multicore processors and the use of MapReduce in processing vast amounts of data.

The new edition begins with an introduction to how to solve problems in parallel and describes how parallelism is used in improving the performance of computers. The topics discussed include instruction level parallel processing, architecture of parallel computers, multicore processors, grid and cloud computing, parallel algorithms, parallel programming, compiler transformations, operating systems for parallel computers, and performance evaluation of parallel computers.

Interspersed with copious examples and numerous exercises, this timely textbook would be a handy and treasured volume for students as well as working professionals.

KEY FEATURES

- Coverage of topics is comprehensive
- Describes architecture of parallel computers, including multicore processors, cloud computing, parallel programming, and operating systems for parallel computers
- Lucid style with numerous examples and exercises

Contents: Preface. Introduction. Solving Problems in Parallel. Instruction Level Parallel Processing. Structure of Parallel Computers. Core Level Parallel Processing. Grid and Cloud Computing. Parallel Algorithms. Parallel Programming. Compiler Transformations for Parallel Computers. Operating Systems for Parallel Computers. Performance Evaluation of Parallel Computers. Appendix. Index.

Latest Print 2016 / 492 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5262-9 / ₹ 525.00 / (e-book also available)

SASIKUMAR, et al.

Introduction to Parallel Processing, 2nd ed.

All three authors, M. SASIKUMAR, DINESH SHIKHARE *and* P. RAVI PRAKASH *were with NCST Mumbai (now part of C-DAC) during the preparation of the first edition. The book has been developed and used by the authors for teaching parallel processing at NCST. M. Sasikumar continues to be at C-DAC carrying out research in various areas of software technology. Ravi Prakash now works as a consultant in the areas of scalable and intelligent systems. Dinesh Shikhare is with a semi-conductor company's R&D group working on software/hardware architecture topics of real-time graphics.*

Written with a straightforward and student-centred approach, this extensively revised, updated and enlarged edition presents a thorough coverage of the various aspects of parallel processing including parallel processing architectures, programmability issues, data dependency analysis, shared memory programming, thread-based implementation, distributed computing, algorithms, parallel programming languages, debugging, parallelism paradigms, distributed databases as well as distributed operating systems.

The book, now in its second edition, not only provides sufficient practical exposure to the programming issues but also enables its readers to make realistic attempts at writing parallel programs using easily available software tools.

With all the latest information incorporated and several key pedagogical attributes included, this textbook is an invaluable learning tool for the undergraduate and post-graduate students of computer science and engineering. It also caters to the students pursuing master of computer application.

WHAT'S NEW TO THE SECOND EDITION

- A new chapter named *Using Parallelism Effectively* has been added covering a case study of parallelising a sorting program, and introducing commonly used parallelism models.
- Sections describing the map-reduce model, top-500.org initiative, Indian efforts in supercomputing, OpenMP system for shared memory programming, etc. have been added.
- Numerous sections have been updated with current information.
- Several questions have been incorporated in the chapter-end exercises to guide students from examination and practice points of view.

Contents: Preface. Preface to the First Edition. Introduction. Parallel Processing Architectures. Programmability Issues. Data Dependency Analysis. Shared Memory Programming. Thread-based Implementation. Distributed Computing-I: Message Passing Model. Distributed Computing-II: Remote Procedure Call. Using Parallelism Effectively. Algorithms for Parallel Machines. Parallel Programming Languages. Debugging Parallel Programs. Other Parallelism Paradigms. Distributed Data Bases. Distributed Operating Systems. Appendices—A: POSIX Threads Reference. B: PVM Reference. C: UNIX Library for Shared Memory Abstraction. D: Programming Assignments. Bibliography. Index.

Latest Print 2014 / 300 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-5031-1 / ₹ 325.00 / (e-book also available)

PC Hardware

JAMES

Computer Hardware: Installation, Interfacing, Troubleshooting and Maintenance

K.L. JAMES, *Technical Officer at the Computer Centre in University of Kerala, Thiruvananthapuram.*

Computer Hardware: Installation, Interfacing, Troubleshooting and Maintenance is a comprehensive and well-organised book that provides sufficient guidelines and proper directions for assembling and upgrading the computer systems, interfacing the computers with peripheral devices as well as for installing the new devices. Apart from this, the book also covers various preventive and corrective steps required for the regular maintenance of computer system as well as the steps that are to be followed for troubleshooting.

The text highlights different specification parameters associated with the computer and its peripherals. Also, an understanding of the technical jargon is conveyed by this book. Special coverage of laptops, printers and scanners makes this book highly modernised.

The book is designed with a practice-oriented approach supported with sufficient photographs and it covers even the minute aspects of the concepts.

Following a simple and engaging style, this book is designed for the undergraduate students of Computer Science and Computer Maintenance. In addition to this, the book is also very useful for the students pursuing Diploma courses in Computer Engineering, Hardware and Troubleshooting as well as for the students of Post-graduate Diploma in Hardware Technology and Application.

KEY FEATURES

- Quick and easy approach to learn the theoretical concepts and practical skills related with the computer hardware.
- Comprehensive with enough illustrations to facilitate an easy understanding.
- Detailed solutions provided by the experts for certain common problems to make better interaction with the learner.
- An exclusive section *Common Problems and Solutions* to help in self resolving the general hardware related issues.

Contents: Preface. Acknowledgements. An Introduction to Computer Hardware. Disassembling Computers. Motherboards. Processing Units. Memory and Storage. Power Supply and UPS. Computer Monitors. Keyboard and Mouse. Assembling and Configuring Computers. Troubleshooting and Maintenance. Laptops Troubleshooting and Maintenance. Computer Printers. Scanners and Speakers. Appendix 1: Worksheet. Appendix 2: Test Your Knowledge. Index.

Latest Print 2013 / 304 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4798-4 / ₹ 250.00 / (e-book also available)

Software Engineering

ANDERSSON, et al.

Software Engineering for Internet Application

EVE ANDERSSON, *Senior Vice President and Chair of the Bachelor of Science in Computer Science at Neumont University, Salt Lake City.*
PHILIP GREENSPUN, *a software developer, author, teacher, pilot, and photographer, originated the Software Engineering for Internet Applications course at MIT.*
ANDREW GRUMET, *Independent Software Developer.*

This book which is a self-contained course on server-based Internet applications software, enables students to build Web-based applications on the scale of **Amazon.com**. Unlike the desktop applications that most students have already learned to build, server-based applications have multiple simultaneous users.

With this book, students will have the skills to take vague and ambitious specifications and turn them into a system design that can be built and launched in a few months. They will be able to test prototypes with end-users and refine the application design. They will understand how to meet the challenge of extreme business requirements with automatic code generation and the use of open-source toolkits where appropriate. Students will understand HTTP, HTML, SQL, mobile browsers, VoiceXML, data modeling, page flow and interaction design, server-side scripting, and usability analysis.

The book is suitable for classroom use and will be a useful reference for software professionals developing multi-user Internet applications. It will also help managers evaluate such commercial software as Microsoft Sharepoint of Microsoft Content Management Server.

Contents: Preface. Acknowledgments. Introduction. Basics. Planning. Software Structure. User Registration and Management. Content Management. Software Modularity.

Discussion. Adding Mobile Users to Your Community. Voice (VoiceXML). Scaling Gracefully. Search. Planning Redux. Distributed Computing with HTTP, XML, SOAP, and WSDL. Metadata (and Automatic Code Generation. User Activity Analysis. Writeup. Reference Chapters. **A.** HTML. **B.** Engagement Management *by Cesar Brea.* **C.** Grading Standards Glossary. To the Instructor. Sample Contract (between Student Team and Client). About the Authors. Index.

Latest Print 2015 / 412 pp. / 17.8 × 23.5 cm
ISBN-81-203-3041-2 / ₹ 395.00

JAMES

Software Engineering, 2nd ed.

K.L. JAMES, *Technical Officer, Computer Centre, University of Kerala, Trivandrum.*

The concepts, trends and practices in different phases of software development have taken sufficient advancement from the traditional ones. With these changes, methods of developing software, system architecture, software design, software coding, software maintenance and software project management have taken new shapes.

Software Engineering discusses the principles, methodologies, trends and practices associated with different phases of software engineering. Starting from the basics, the book progresses slowly to advanced and emerging topics on software project management, process models, developing methodologies, software specification, testing, quality control, deployment, software security, maintenance and software reuse. Case study is a special feature of this book that discusses real life situation of dealing with IT related problems and finding their practical solutions in an easy manner. Elegant and simple style of presentation makes reading of this book a pleasant experience. Students of Computer Science and Engineering, Information Technology and Computer Applications should find this book highly useful. It would also be useful for IT technology professionals who are interested to get acquainted with the latest and the newest technologies.

NEW TO THIS EDITION

- Chapter-end exercises at the end of each chapter
- Exclusive Do it Yourself sections in all the chapters
- New Case Studies
- New topics on Vendor selection and management, Cloud computing development, Open source development, IDE, MIMO technology, and .NET

Contents: Preface. An Introduction to Software Engineering. Software Project Management. Software Process Models. Software Development Approaches. Feasibility Factors and Software Metrics Estimation. Requirements Analysis and Software Requirements Specifications. Software Design. Software Coding. Software Testing. Software Quality. Software Deployment. Software Security. Software Reuse. Software Maintenance. CASE Tools. Index.

Latest Print 2015 / 488 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5004-5 / ₹ 495.00 / (e-book also available)

KELKAR

Software Engineering: A Concise Study

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering and the Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay.*

A decade ago nobody could have imagined the crucial role that software would play in our everyday life. The artificial boundaries between hardware, software, telecommunication, and many other disciplines are getting blurred very rapidly.

This book presents the essentials of theory and practice of software engineering in an abstracted form. Presenting the information based on software development life cycle, the text guides the students through all the stages of software production—Requirements, Designing, Construction, Testing and Maintenance.

KEY FEATURES

- Emphasizes on non-coding areas
- Includes appendices on "need to know" basis
- Makes the learning easier as organized by software development life cycle

This text is well suited for academic courses on Software Engineering or for conducting training programmes for software professionals. This book will be equally useful to the instructors of software engineering as well as busy professionals who wish to grasp the essentials of software engineering without attending a formal instructional course.

Contents: Preface. Abbreviations. Software Engineering Backdrop. Software Development Orientation. Practices, Processes and Architecture. Software Project Management. Project Planning. Project Execution, Control and Closing. Software Requirements Phase. Software Design Phase. Object Oriented Analysis and Design. User Interface Development. Software Construction Phase. Quality Control. Appendices—A: Estimation Techniques. B: Quality and Quality Management Systems. C: Metrics and Measurements. D: Configuration Management. E: Process Modelling. F: Data Modelling. G: Time Frame Modelling. H: Object Orientation and UML. Bibliography.

Latest Print 2014 / 952 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3272-0 / ₹ 595.00 / (e-book also available)

RAJIB MALL

Fundamentals of Software Engineering, 4th ed.

RAJIB MALL, *Professor, Department of Computer Science and Engineering, IIT Kharagpur.*

Advancements and rapid developments have led to many ramifications in the ever-changing world of software engineering. This book, in its fourth edition, is restructured and extensively revised to trace the advancements made and landmarks achieved in the field. This book not only incorporates latest and enhanced software engineering techniques and practices but also

shows how these techniques are applied into the practical software assignments. The chapters are incorporated with illustrative examples to add an analytical insight on the subject. The book is logically organised to cover expanded and revised treatment of all software process activities.

NEW TO THIS EDITION

- The contents and presentation of all chapters have been improved thoroughly.
- Objective type questions have been included in all the chapters.
- More practice questions have been added to help students understanding the concepts readily.
- McCall's quality factors and ISO 9126 have been introduced in the chapter dealing with software quality assurance (Chapter 11).

Primarily intended for the undergraduate students of Computer Science and Engineering, the book is also beneficial for the students opting for a course in MCA, MBA and IT.

KEY FEATURES

- Large number of worked-out examples and practice problems.
- Chapter-end exercises and solutions to selected problems to check students' comprehension on the subject.
- Solutions manual available for instructors.
- PowerPoint slides available online at **www.phindia.com/rajibmall** to provide integrated learning to the students.

Contents: Preface. Introduction. Software Life Cycle Models. Software Project Management. Requirements Analysis and Specification. Software Design. Function-oriented Software Design. Object Modelling Using UML. Object-Oriented Software Development. User Interface Design. Coding and Testing. Software Reliability and Quality Management. Computer Aided Software Engineering. Software Maintenance. Software Reuse. Emerging Trends. References. Index.

Latest Print 2016 / 556 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4898-1 / ₹ 325.00 / (e-book also available)

SINGH & MALHOTRA

Object-Oriented Software Engineering

YOGESH SINGH, *Vice Chancellor, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat.*

RUCHIKA MALHOTRA, *Assistant Professor, Department of Software Engineering, Delhi Technological University, Delhi.*

This book is designed for the undergraduate and postgraduate students of computer science and engineering, information technology and MCA.

The text focuses on object-oriented software engineering in the context of an overall effort to present object-oriented concepts, techniques and models that can be applied in software estimation, analysis, design, testing and quality improvement. It presents traditional and object-oriented software development life cycle models with a special focus on rational unified process model. It explains the type of classes, their relationships and structures using unified modelling language notations. The text addresses the important issues of improving software quality and measuring various object-oriented constructs using object-oriented metrics. Finally, it analyses the importance of object-oriented testing and maintenance of software developed using object-oriented software engineering techniques and methods.

The book includes a number of solved examples, multiple choice questions, review questions and case studies. The concepts and models explained and developed in this book are demonstrated using a real-life case study of library management system.

Contents: Preface. Introduction. Software Development Life Cycle Models. Software Requirements Elicitation and Analysis. Object-Oriented Software Estimation. Object-Oriented Analysis. Object-Oriented Desgin. Moving towards Implementation. Software Quality and Metrics. Software Testing. Software Maintenance. References. Appendix. Answers to Multiple Choice Questions.

Latest Print 2012 / 312 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4535-5 / ₹ 350.00 / (e-book also available)

Software Project Management

KELKAR

Software Project Management: A Concise Study, 3rd ed.

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering, Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay.*

This well-established and highly appreciated book, now in its Third Edition, continues to build on the strength of the previous two editions.

While retaining many of the existing topics, Professor S.A. Kelkar, with his wealth of experience and expertise, gives an uptodate analysis of the subject, incorporating several new topics. The book is suffused with illustrations to reinforce the concepts discussed. As software project management is a core course in Computer Science and Engineering and Information Technology, and is a preferred choice of many management students, this book should be treasured by the readers, both for its utility and novelty of treatment.

Intended as a text for undergraduate and postgraduate students of Computer Science and Engineering and Information Technology, this concise and compact book would be extremely useful also to the postgraduate students of Computer Applications and postgraduate students of Management specializing in IT.

NEW TO THIS EDITION

- Three Appendices on **Nutshell: Managing Complex Projects; Overview of IT Service Management;** and **Emotional Intelligence in Project Management** are included.
- Chapter 1 has been reorganized to make it more comprehensive.
- Chapter 2 has been split into three chapters (Chapters 2, 3 and 4). Each chapter deals with project management basics, planning, and control, emphasizing **stakeholder management, quality management, and earned management.**

Contents: Preface. Preface to the First Edition. Abbreviations. Technical Development of Software. Software Project Management Basics. Project Initiation, and Planning. Project Execution, Control, Closing and Beyond. Software Project Estimation. Software Quality Management. Software Configuration Management. Software Team Management. Role of User in Software Projects. Appendices—A: Metrics and Measurements. B: Nutshell: Managing Complex Projects. C: Overview of IT Service Management. D: Emotional Intelligence in Project Management. Further Readings.

Latest Print 2013 / 372 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4702-1 / ₹ 275.00 / (e-book also available)

SUDHAKAR

Elements of Software Project Management

G.P. SUDHAKAR, *Faculty Member, ICFAI School of Information Technology (ISIT), Hyderabad.*

Project management requires immense skills to achieve the end-result. But sometimes lack of project management skills results in failures. It is therefore, essential to study the basic features of project management. This book is a contribution towards that goal.

Divided into three sections—introduction, people-related aspects or human resources and advanced topics—the book brings forth the inside-story of the software project management in an IT company. The simple descriptive style of presentation will enable any beginner to get a clear picture of the procedures that are followed in the IT companies.

Intended for undergraduate and postgraduate students of computer science and engineering, this textbook will also be useful for many software engineers and professionals dominating the hierarchy of the IT industry.

KEY FEATURES

- *Review Questions* to grasp the topics easily
- *Quiz Questions* to reinforce the understanding of the subject
- Relevant *Case Studies* depicting various situations and the necessary actions and decisions to be taken

Contents: Preface. Section I: Introduction—Introduction to Software Project Management. Software Project Life Cycles. Project Initiation and Kick Off. Software Project Planning. Project Time and Cost Estimations. Project Scheduling. Project Quality Management. Project Execution. Project Monitoring and Control. Project Risk Planning and Monitoring. Project Procurements Management. Section II: People Related—The Project Manager' Skills and Competencies. Project Human Resources Management. Project Communications Management. Section III: Advanced Topics—Software Project Change Management. Introduction to Program Management. Introduction to Project Portfolio Manage-ment. Project Management Maturity Models. Light Weight Project Management Methodologies. Project Management Careers. PMI-PMBOK. UK OGC's PRINCE 2. Index.

Latest Print 2010 / 248 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4161-6 / ₹ 225.00 / (e-book also available)

SUDHAKAR

Software Development Teams: Performance, Productivity and Innovation

G.P. SUDHAKAR, *Faculty Member, ICFAI University Group, Hyderabad.*

The book, *Software Development Teams*, offers a new and unique approach to developing software project teams. It guides IT experts and managers for forming, assessing and developing successful project management teams for effective performance and productivity.

Focusing on the management side of the software industry, this text-cum-reference book discusses key aspects of the management such as performance measurement, organisational structure and development, motivation of the team with awards and rewards to bring innovative ideas, and the best practices followed in the modern software industry for measuring the team effectively.

The book begins with an introduction of software teams, explaining how software projects are different. It then discusses the characteristics, skills and competencies that are required for a perfect programmer or a project manager, in addition to many other dimensions of software development teams.

It further includes empirical studies on team climate, team performance, team productivity and team innovation. Next, it explores the factors that are important for maintaining the software development team climate, and the impact of conflicts on teams, which may ultimately have negative impact on the organisation.

Tools and techniques to measure performance of software development team are explained along with the factors that influence the teams' performance, relationship between team cohesion, productivity and finally the performance.

Different types of possible innovation in software teams and organisations, innovation cycle and framework, role of top management and leadership in team management are also given due weightage.

Providing an exhaustive description of the origin and present status of the Indian software industry using

statistical data, the book is useful for the students of MBA (IT), BE/B.Tech (CS and IT), M.Tech (CS and IT) and M.Tech (Software Engineering). The book is also useful as a reference for professionals in the field of information systems, software project management, software engineering, team management and organisational development.

KEY FEATURES OF THE BOOK

- Highlights the latest studies in the field and cites inferences of various researchers.
- Includes numerous figures, tables, graphs, and abbreviations to clarify the concepts.
- Provides chapter-end questions and quick quiz (multiple choice questions with answers) to test the knowledge acquired.
- Incorporates keywords introduced and adequate number of references, which make the book an ideal tool for learning the concepts of software development teams.
- Includes case studies to show the application of concepts of software development teams in real life scenarios.

Contents: Preface. Acknowledgement. List of Figures. List of Tables. List of Abbreviations. Introduction to Software Development Teams. Research Studies on Software Development Teams. Software Development Team Climate. Software Development Team Performance. Software Development Team Productivity. Software Development Team Innovation. Indian Software Industry. Index.

Latest Print 2015 / 208 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5179-0 / ₹ 275.00 / (e-book also available)

Software Agents

BRADSHAW (Ed.)

Software Agents

Edited by: JEFFREY M. BRADSHAW *leads the agent technology efforts for The Boeing Company and the Fred Hutchinson Cancer Research Center in Seattle, Washington. Other contributors include Donald A. Norman, Nicholas Negroponte, Brenda Laurel etc.*

Automata have existed for centuries, it is only recently that anything resembling autonomous agents has begun to appear. The agents now being deployed differ in important ways from earlier concepts, for today the momentum has shifted from hardware to software, from the atoms that comprise a mechanical robot to the bits that make up a digital agent. These software agents function continuously and autonomously in a particular environment that is often inhabited by other agents and processes.

The essays in this book, by leading researchers and developers of agent-based systems, address both the state-of-the-art of agent technology and its likely evolution in the near future.

Contents: Preface. Introduction. Section One: Agents and the User Experience—How Might People Interact with Agents. Agents: From Direct Manipulation to Delegation. Interface Agents: Metaphors with Character. Designing Agents as if People Mattered. Direct Manipulation Versus Agents: Paths to Predictable, Controllable, and Comprehensible Interfaces. Section Two: Agents for Learning and Intelligent Assistance—Agents for Information Sharing and Coordination: A History and Some Reflections. Agents that Reduce Work and Information Overload. KidSim: Programming Agents without a Programming Language. Lifelike Computer Characters: The Persona Project at Microsoft Research. Software Agents for Cooperative Learning. M: An Architecture of Integrated Agents. Section Three: Agent Communication, Collaboration, and Mobility—An Overview of Agent-Oriented Programming. KQML as an Agent Communication Language. An Agent-Based Framework for Interoperability. Agents for Information Gathering. KAoS: Toward an Industrial-Strength Open Agent Architecture. Communicative Actions for Artificial Agents. Mobile Agents. Index.

Latest Print 2012 / 492 pp. / 15.3 × 22.9 cm
ISBN-978-81-203-4135-7 / ₹ 425.00

Software Testing

BASU

Software Quality Assurance, Testing and Metrics

ANIRBAN BASU, *Professor in Computer Science and Engineering and an accredited Research Supervisor and Examiner in several reputed universities for supervising and examining PhD theses on software engineering, cloud computing, big data and Green IT.*

Intended for both undergraduate and postgraduate students of computer science and engineering, information technology, students of computer applications, and working IT professionals, this text describes the practices necessary for the development of quality software.

The contents of the book have been framed based on the syllabi prescribed by different Universities and also covers the topics required for working in the IT industry. Based on the experience of the author in the industry, academics, consultancy and corporate trainings in India and abroad, the book covers the methodologies, techniques, and underlying concepts used in Software Quality Assurance and Testing. The treatment of the topics is crisp and accompanied with illustrative examples with minimum jargons. Topics of relevance in the industry, which a student must be familiar with before start of a career, are covered in the book. The book also discusses the concepts that a working IT professional should know. The book provides an insight into the tools available for different types of testing. Each chapter contains Quizzes, Multiple Choice Questions and Review Questions which help the readers to qualify in the international certification examinations.

KEY FEATURES

- Covers topics relevant to the industry
- Concepts discussed in an easy to understand way and illustrated with practical examples and figures wherever required
- Contains "Objective Questions" at the end of the book
- Includes topics prescribed in international certification exams in Software Quality and Testing

Contents: Preface. Introduction to Software Quality Engineering. Software Quality Assurance. Reviews, Inspections and Walkthroughs. Introduction to Testing. White Box (Structural-Based) Testing. Integration Testing. Functional Testing. Non-Functional, Acceptance and Regression Testing. Testing of OO Software and Agile Testing. The Management. Metrics for Software Quality. Cloud Testing. Test Automation. Tools for Quality Improvement. Index.

Latest Print 2015 / 316 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5068-7 / ₹ 295.00 / (e-book also available)

DESAI & SRIVASTAVA

Software Testing: A Practical Approach, 2nd ed.

SANDEEP DESAI, *Executive Vice President (Information Technology), AFCONS Infrastructure Limited, Mumbai.*
ABHISHEK SRIVASTAVA, *software engineering, is a partner at TECHCANVASS.*

This thoroughly revised and updated book, now in its second edition, intends to be much more comprehensive book on software testing. The treatment of the subject in the second edition maintains to provide an insight into the practical aspects of software testing, along with the recent technological development in the field, as in the previous edition, but with significant additions. These changes are designed to provide in-depth understanding of the key concepts.

Commencing with the introduction, the book builds up the basic concepts of quality and software testing. It, then, elaborately discusses the various facets of verification and validation, methodologies of both static testing and dynamic testing of the software, covering the concepts of structured group examinations, control flow and data flow, unit testing, integration testing, system testing and acceptance testing. The text also focuses on the importance of the cost-benefit analysis of testing processes, test automation, object-oriented applications, client-server and web-based applications. The concepts of testing commercial off-the-shelf (COTS) software as well as object-oriented testing have been described in detail. Finally, the book brings out the underlying concepts of usability and accessibility testing. Career in software testing is also covered in the book.

The book is intended for the undergraduate and postgraduate students of computer science and engineering for a course in software testing.

NEW TO THE SECOND EDITION

- New chapters on
  - o Verification and Validation
  - o Usability and Accessibility Testing
  - o Career in Software Testing
- Numerous case studies
- Revamped chapters on *Dynamic Testing* (interaction testing and retrospection included), *Testing Specialised Systems* (mobile testing included) and *Object-Oriented Testing*

Contents: Preface. Introduction. Software Development Life Cycle and Testing. Verification and Validation. Static Testing. Dynamic Testing. Testing Tools. Test Management. Testing Specialized Systems. Testing COTS. Object-Oriented Testing. Usability and Accessibility Testing. Career in Software Testing. Appendix: Object-oriented Terminology. Index.

Latest Print 2016 / 376 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-5226-1 / ₹ 450.00 / (e-book also available)

KELKAR

Software Quality and Testing: A Concise Study

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering, and the Shailesh J. Mehta School of Management, at the Indian Institute of Technology Bombay, Mumbai.*

This book is aimed at emphasising the fundamental concepts associated with Software Quality and Software Testing from a balanced perspective of theory and practice. By presenting the information in an abstracted form, this text guides the readers through all aspects of developing quality software (across the entire development life cycle). The book is written around the strategy of error avoidance, error detection (and correction), and error tolerance (as a last resort).

This text is well suited for teaching an academic course as a part of the Computer Science and/or Information Technology and/or MCA curriculum, or for conducting an equivalent training programme for professionals.

KEY FEATURES

- Emphasises on management people issues in quality management
- Written in bullet point form
- Chapters follow the natural evolution of quality management

Contents: Preface. Abbreviations. From Quality to Quality Management. Quality Assurance. Quality Control. Inspections, Reviews, and Walkthroughs. Software Testing. Levels of Testing. Testing Techniques. Debugging. Software Testing Tools. Quality and Auditing. Appendices—A: Software Development Orientation. B: Measurements and Software Metrics. C: Tools and Techniques for QC. D: QMS Models. Suggested Reading.

Latest Print 2012 / 624 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-4628-4 / ₹ 475.00 / (e-book also available)

System Software

CHATTOPADHYAY

System Software

SANTANU CHATTOPADHYAY, *Professor, Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology Kharagpur.*

Intended as a text for the undergraduate students of **Computer Science** and Master of Computer Applications (MCA), this comprehensive yet concise book introduces the reader to the recent Intel 32-bit architecture, its programming and associated system programs. The text begins by giving an overview of major system software and proceeds to discuss the assembly language programming with a number of examples. Topics such as assemblers, linkers and **microprocessor** are dealt with using Netwide Assembler (NASM)—the free platform independent assembler to generate object code. All the stages of a compiler design, its important methodologies, and the recent design techniques of text editor along with the advance data structures used for this purpose are also covered in sufficient detail. Finally, the essential features of debuggers, their design techniques and, most importantly, the hardware and software support for designing a good debugger are described.

KEY FEATURES

- Gives a fairly large number of examples and problems to help students in understanding the concepts better.
- The text easily correlates theory with practice.
- Provides exhaustive discussion on Netwide Assembler (NASM).

Contents: Preface. Acknowledgements. Introduction. Assembly Language Programming. Assembler Design. Linker and Loader. Macroprocessor. Compiler. Text Editor. Debugger. Appendix: The Netwide Assembler: NASM. Bibliography. Index.

Latest Print 2016 / 208 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3051-1 / ₹ 195.00

Systems Analysis and Design

CHIANG, SIAU & HARDGRAVE (Eds.)

Systems Analysis and Design: Techniques, Methodologies, Approaches, and Architectures

Edited by: ROGER H.L. CHIANG, KENG SIAU and BILL C. HARDGRAVE

For the last two decades, IS researchers have conducted empirical studies leading to a better understanding of the impact of Systems Analysis and Design methods in business, managerial, and cultural contexts. SA&D research has established a balanced focus not only on technical issues, but also on organizational and social issues in the information society.

This volume presents the very latest, state-of-the-art research by well-known figures in the field. The chapters are grouped into three categories: techniques, methodologies, and approaches.

Contents: Preface. The State of Systems Analysis and Design Research. *John Erickson and Keng Siau.* Part I: Techniques for Systems Engineering and Requirements Elicitation—Flow-Service-Quality (FSQ) Systems Engineering: A Disciplines for Developing Network-Centric. Information Systems—*Alan Hevner, Richard Linger, Mark Pleszkoch, Stacy Prowell, and Gwendolyn Walton.* Requirements Elicitation Techniques as Communication Channels: A Framework to Widen the Window of Understanding—*Robert M. Fuller and Christopher J. Davis.* Part II: Methodology Foundation and Evolution of Systems Analysis and Design—Iteration in Systems Analysis and Design: Cognitive Processes and Representational Artifacts—*Nicholas Berente and Kalle Lyytinen.* A Framework for Identifying the Drivers of Information Systems Development Method Emergence—*Sabine Madsen and Karlheinz Kautz.* Transition to Agile Software Development in a Large-Scale Project: A Systems Analysis and Design Perspective—*Yael Dubinsky, Orit Hazzan, David Talby, and Arie Keren.* Part III: Agent-Oriented Systems Analysis and Design Methodologies—Agent-Oriented Information Systems Analysis and Design: Why and How—*Paolo Giorgini, Manuel Kolp, and John Mylopoulos.* Agent-Oriented Methods and Method Engineering—*Brian Henderson-Sellers.* Part IV: New Approaches and Architectures for Information Systems Development—Application of the Fact-Based Approach to Domain Modeling of Object-Oriented Information Systems—*Kinh Nguyen and Tharan Dillon.* Systematic Derivation and Evaluation of Domain-Specific and Implementation-Independent Software Architectures—K. *Suzanne Barber and Thomas Graser*. OO-Method: A Conceptual Schema-Centric Development Approach—*Oscar Pastor, Juan Carlos Molina, and Emilio Iborra.* Index.

Latest Print 2009 / 256 pp. / 17.8 × 23.5 cm
ISBN-978-81-203-3883-8 / ₹ 325.00

GARG & SRINIVASAN

Workbook on Systems Analysis and Design, Revised 2nd ed.

VINOD KUMAR GARG, *Professor of Information Management at S.P. Jain Institute of Management and Research, Mumbai.*
S. SRINIVASAN, *Project Manager of Deloitte Consulting, Hyderabad.*

This second edition, which is intended to provide step-by-step approach to the fundamentals of systems development in interactive hands-on and stimulating learning environment, includes new chapters that focus on object-oriented analysis and design and approach to web application develop-ment. To enhance understanding

of the subject, all the topics of the first edition have been reviewed and expanded.

In this workbook, examples are introduced in the sequence in which they would be needed during systems analysis and design. The book first outlines the steps followed in analysis and design and then illustrates the same with examples. The end-of-chapter practice exercises provide an incremental framework to reinforce the hands-on nature of learning.

This should serve as an ideal workbook for students and instructors as well as for the systems analysts and designers of IT companies to solve their day-to-day systems related problems.

KEY FEATURES

- Provides hints on how to use techniques of SSAD in actual practice.
- Gives a comprehensive case study illustrating how the various application modeling tools could be applied in an integrated manner to a real life situation.
- Presents additional chapters on OOAD and web development.
- Supplies question bank with more than 50 carefully selected questions on various concepts.

Contents: Preface. Acknowledgments. Chapter Summary. Introduction. Application Modeling. Database Design. Input-Output Design. Program Design. Case Study. Object-Oriented Analysis and Design. Question Bank. Appendix A—Structured Methodology Elements. Appendix B—Web Case Study. Glossary. Index.

Latest Print 2009 / 252 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-1724-6 / ₹ 250.00

GOYAL

Systems Analysis and Design

ARUNESH GOYAL, *Director, Institute for Studies in Mathematics and Related Sciences in Computers (ISMRSC), Delhi.*

Written in an easy-to-understand style, this text introduces the reader to the systems approach to study existing information systems, carry out an analysis, and finally come up with the best solution along with its design. It explains various facets of the Systems Development Life Cycle (SDLC) and includes two special case studies to help the reader understand the concept not only from a theoretical point of view but from a practical angle as well. The book also discusses in detail topics such as project selection and planning, data collection, form and file design, database design and management, software maintenance, hardware/software selection, disaster recovery and system security, and social issues.

The book is intended as a text for the undergraduate and postgraduate students of computer science and applications.

KEY FEATURES

- Supplies a fully Solved Question Bank to guide the reader to solve the problems.
- Gives three Appendices, namely, development of computers, programming languages and decision tables.
- Provides a large number of illustrations to aid in comprehension.
- Gives chapter-end Model Questions to probe a student's grasp of the concept discussed.

Contents: Preface. Acknowledgements. Prologue: A Demo Presentation. The Systems Concept and Information Systems. Systems Development: A Preview. Role of the Systems Analyst. Systems Analysis and Design: An Overview. Project Selection and Planning (Initial Approach and Scheduling). Preliminary Investigation, Feasibility Study, and Cost–Benefit Analysis. Data Collection and other Tools of Systems Analysis and Design. The Concept of Systems Design. Input/Output and On-line Dialogue Design. Forms and File Design. Database Design and Management. Systems Documentation. Testing, Installation/Implementation and Quality Assurance. Software Maintenance and Project Scheduling/Managements. Hardware/Software Selection and Acquisition. Disaster Recovery, System Security, Ethics and Future Possibilities. Social Issues. Questions Bank (Solved). Appendices A1–A3. Index

Latest Print 2011 / 232 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-4284-2 / ₹ 195.00 / (e-book also available)

KELKAR

Structured Systems Analysis and Design: A Concise Study

S.A. KELKAR, *Former Adjunct Professor in the Department of Computer Science and Engineering and the Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay.*

Virtual presence of Internet and availability of infor-mation on the net have led to information systems becoming an inseparable part of organizations. Today, computer-based information systems are extensively used for acquisition, storage, and dissemination of data throughout the organizations. These information systems, however, need to be backed by sound software development activities. The systems analysts play a key role in development and implementation of the information systems in the organizations. It is, therefore, essential that they remain abreast of the latest software development methods and tools while using them.

This concise book presents in an abstracted form, the essentials of theory and practice of structured systems analysis and design. It is aimed at getting the conceptual framework across to the readers and thus aiding in concept implementation. Well-suited for teaching an

academic course of one semester in systems analysis and design, the text is also suitable for conducting short term training programmes for software professionals. Armed with these concepts and ideas, the systems analysts will be able to tackle various aspects of systems analysis and design in real life situations.

Contents: Preface. SSAD: The Project Fit. Development Methodologies and CASE Tools. Systems Analysis. Requirements Strategies and Methods. Process Modeling. Logical DFDs. Data Modeling. Entity Life Histories. User Interface. Establish Requirements. Software Quality Assurance. System Design. Normal Form Analysis. System Partitioning. Program Design. Software Testing. Putting the Systems to Use. Suggested Reading.

Latest Print 2009 / 324 pp. / 16.0 × 24.1 cm
ISBN-978-81-203-2451-0 / ₹ 225.00

AUTHORWISE ALPHABETICAL LISTING

		Price (₹)
AGRAWAL: SAP HR India Payroll: Technical Reference and Learning Guide, 70	e-book	**595.00**
AGRAWAL: SAP HR: OM, PD and Training—Technical Reference and Learning Guide, 71	e-book	**595.00**
AGRAWAL: SAP HR Personnel Administration and Recruitment: Technical Reference & Learning Guide, 2nd ed., 71	e-book	**595.00**
AGRAWAL: SAP HR Time Management: Technical Reference and Learning Guide, 2nd ed., 72	e-book	**595.00**
AGRAWAL: SAP MM Consumption Based MRP, 73	e-book	**550.00**
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ANAND KUMAR: Switching Theory and Logic Design, 3rd ed., 61	e-book	**550.00**
ANANDA NATARAJAN: Digital Design, 62	e-book	**595.00**
ANDERSSON, et al.: Software Engineering for Internet Application, 113		**395.00**
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BASU: Software Quality Assurance, Testing and Metrics, 117	e-book	**295.00**
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BERNARD & BACHU: Database Systems with Case Studies, 54	e-book	**395.00**
BHATIA: Medical Informatics, 12	e-book	**195.00**

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