

Discrete Mathematics Ii Set Theory For Computer Science

RIGHT HERE, WE HAVE COUNTLESS EBOOK **DISCRETE MATHEMATICS Ii SET THEORY FOR COMPUTER SCIENCE** AND COLLECTIONS TO CHECK OUT. WE ADDITIONALLY PROVIDE VARIANT TYPES AND THEN TYPE OF THE BOOKS TO BROWSE. THE GOOD ENOUGH BOOK, FICTION, HISTORY, NOVEL, SCIENTIFIC RESEARCH, AS CAPABLY AS VARIOUS EXTRA SORTS OF BOOKS ARE READILY UNDERSTANDABLE HERE.

AS THIS DISCRETE MATHEMATICS Ii SET THEORY FOR COMPUTER SCIENCE , IT ENDS OCCURRING CREATURE ONE OF THE FAVORED BOOKS DISCRETE MATHEMATICS Ii SET THEORY FOR COMPUTER SCIENCE COLLECTIONS THAT WE HAVE. THIS IS WHY YOU REMAIN IN THE BEST WEBSITE TO LOOK THE AMAZING EBOOK TO HAVE.

DISCRETE STRUCTURE AND AUTOMATA THEORY FOR LEARNERS - Dr. UMESH SEHGAL 2020-09-05

LEARN TO IDENTIFY THE IMPLEMENTATION OF DISCRETE STRUCTURE AND THEORY OF AUTOMATA IN A MYRIAD OF APPLICATIONS USED IN DAY TO DAY LIFE KEY FEATURES [?](#) LEARN HOW TO WRITE AN ARGUMENT USING LOGICAL NOTATION AND DECIDE IF THE ARGUMENT IS VALID OR NOT VALID. [?](#) LEARN HOW TO USE THE CONCEPT OF DIFFERENT DATA STRUCTURES (STACKS, QUEUES, SORTING CONCEPT, ETC.) IN THE COMPUTER SCIENCE FIELD. [?](#) LEARN HOW TO USE AUTOMATA MACHINES LIKE FSM, PUSHDOWN AUTOMATA, TURING MACHINE, ETC. IN VARIOUS APPLICATIONS RELATED TO COMPUTER SCIENCE THROUGH SUITABLE PRACTICAL ILLUSTRATION. [?](#) LEARN HOW TO IMPLEMENT THE FINITE STATE MACHINE USING JFLAP (JAVA FORMAL LANGUAGES AND AUTOMATA PACKAGE). DESCRIPTION THIS BOOK'S PURPOSE IS TO PROVIDE A MODERN AND COMPREHENSIVE INTRODUCTION TO THE SUBJECT OF DISCRETE STRUCTURES AND AUTOMATA THEORY. DISCRETE STRUCTURES, ALSO CALLED DISCRETE MATHEMATICS, ARE AN EXCITING AND ACTIVE SUBJECT, PARTICULARLY DUE TO ITS EXTREME RELEVANCE TO BOTH MATHEMATICS AND COMPUTER SCIENCE AND ALGORITHMS. THIS SUBJECT FORMS A COMMON FOUNDATION FOR RIGOROUS MATHEMATICAL, LOGICAL REASONING AND PROOFS, AS WELL AS A FORMAL INTRODUCTION TO ABSTRACT OBJECTS THAT ARE ESSENTIAL TOOLS IN AN ASSORTMENT OF APPLICATIONS AND EFFECTIVE COMPUTER IMPLEMENTATIONS. COMPUTING SKILLS ARE NOW AN INTEGRAL PART OF ALMOST ALL THE SCIENTIFIC FIELDS, AND STUDENTS ARE VERY ENTHUSIASTIC ABOUT BEING ABLE TO HARNESS THE FULL COMPUTING POWER OF THESE TOOLS. FURTHER, THIS BOOK ALSO DEEP DIVES INTO THE AUTOMATA THEORY WITH VARIOUS EXAMPLES THAT ILLUSTRATE THE BASIC CONCEPTS AND IS SUBSTANTIATED WITH MULTIPLE DIAGRAMS. THE BOOK'S VITAL FEATURE IS THAT IT CONTAINS THE PRACTICAL IMPLEMENTATION OF THE AUTOMATA MACHINE EXAMPLE THROUGH THE JFLAP TOOL. COURSES ON DISCRETE STRUCTURES AND AUTOMATA THEORY ARE OFFERED AT MOST UNIVERSITIES AND COLLEGES. WHAT WILL YOU LEARN [?](#) UNDERSTAND THE BASIC CONCEPTS OF SETS AND OPERATIONS IN SETS. [?](#) DEMONSTRATE DIFFERENT TRAVERSAL TECHNIQUES FOR TREES AND GRAPHS. [?](#) DEEP DIVE INTO THE CONCEPT OF MATHEMATICAL INDUCTION, SETS, RELATIONS, FUNCTIONS, RECURSION, GRAPHS, TREES, BOOLEAN ALGEBRA, AND PROOF TECHNIQUES. [?](#) UNDERSTAND THE CONCEPT OF AUTOMATA MACHINES IN DAY TO DAY LIFE LIKE THE ELEVATOR, TURNSTILE, GENETIC ALGORITHMS, TRAFFIC LIGHTS, ETC. [?](#) USE THE JFLAP TOOL TO SOLVE THE VARIOUS EXERCISE PROBLEMS RELATED TO AUTOMATA THEORY. WHO THIS BOOK IS FOR THIS BOOK IS A MUST-READ TO EVERYONE INTERESTED IN IMPROVING THEIR CONCEPTS REGARDING DISCRETE STRUCTURE AND AUTOMATA THEORY. TABLE OF CONTENTS 1. SET THEORY 2. RELATIONS AND FUNCTIONS 3. GRAPH THEORY 4. TREES 5. ALGEBRAIC STRUCTURE 6. RECURSION AND RECURRENCE RELATIONS 7. SORTING 8. QUEUES 9. INTRODUCTION 10. FINITE AUTOMATA THEORY 11. THEORY OF MACHINES 12. REGULAR LANGUAGE 13. GRAMMAR 14. PUSHDOWN AUTOMATA 15. CELLULAR AUTOMATA 16. TURNING MACHINE 17. PROBLEMS SOLVING USING JFLAP TOOL 18. REVISION QUESTIONS

DISCRETE MATHEMATICS AND ITS APPLICATIONS - JOSHUA WALTERS 2022-09-13

THE STUDY OF MATHEMATICAL STRUCTURES WHICH ARE DISCRETE IN NATURE RATHER THAN BEING CONTINUOUS IS TERMED AS DISCRETE MATHEMATICS. THE FUNDAMENTAL OBJECTS OF THIS DISCIPLINE SUCH AS INTEGERS, GRAPHS AND LOGIC STATEMENTS DO NOT VARY SMOOTHLY BUT HAVE DISTINCT AND SEPARATED VALUES. IT ALSO DEALS WITH COUNTABLE SETS. THE SUBJECT OF DISCRETE MATHEMATICS CAN BE FURTHER CLASSIFIED INTO INFORMATION THEORY, SET THEORY, COMBINATORICS, PROBABILITY, GRAPH THEORY, NUMBER THEORY, GAME THEORY, GEOMETRY, TOPOLOGY AND OPERATIONS RESEARCH. IT FINDS EXTENSIVE APPLICATIONS IN THE FIELDS OF PROGRAMMING LANGUAGE, CRYPTOGRAPHY AND SOFTWARE DEVELOPMENT. THIS BOOK PRESENTS THE COMPLEX SUBJECT OF DISCRETE MATHEMATICS IN THE MOST COMPREHENSIBLE AND EASY TO UNDERSTAND LANGUAGE. THE TOPICS INCLUDED HEREIN ON DISCRETE MATHEMATICS ARE OF UTMOST SIGNIFICANCE AND BOUND TO PROVIDE INCREDIBLE INSIGHTS TO READERS. THE BOOK IS APPROPRIATE FOR THOSE SEEKING DETAILED INFORMATION IN THIS AREA.

THE DISCRETE MATH WORKBOOK - SERGEI KURGALIN 2020-08-12

THIS PRACTICALLY-FOCUSED STUDY GUIDE INTRODUCES THE FUNDAMENTALS OF DISCRETE MATHEMATICS THROUGH AN EXTENSIVE SET OF CLASSROOM-TESTED PROBLEMS. EACH CHAPTER PRESENTS A CONCISE INTRODUCTION TO THE RELEVANT THEORY, FOLLOWED BY A DETAILED ACCOUNT OF COMMON CHALLENGES AND METHODS FOR OVERCOMING THESE. THE READER IS THEN ENCOURAGED TO PRACTICE SOLVING SUCH PROBLEMS FOR THEMSELVES, BY TACKLING A VARIED SELECTION OF QUESTIONS AND ASSIGNMENTS OF DIFFERENT LEVELS OF COMPLEXITY. THIS UPDATED SECOND EDITION NOW COVERS THE DESIGN AND ANALYSIS OF ALGORITHMS USING PYTHON, AND FEATURES MORE THAN 50 NEW PROBLEMS, COMPLETE WITH SOLUTIONS. TOPICS AND FEATURES: PROVIDES A SUBSTANTIAL COLLECTION OF PROBLEMS AND EXAMPLES OF VARYING LEVELS OF DIFFICULTY, SUITABLE FOR BOTH LABORATORY PRACTICAL TRAINING AND SELF-STUDY; OFFERS DETAILED SOLUTIONS TO EACH PROBLEM, APPLYING COMMONLY-USED METHODS AND COMPUTATIONAL SCHEMES; INTRODUCES THE FUNDAMENTALS OF MATHEMATICAL LOGIC, THE THEORY OF ALGORITHMS, BOOLEAN ALGEBRA, GRAPH THEORY, SETS, RELATIONS, FUNCTIONS, AND COMBINATORICS; PRESENTS MORE ADVANCED MATERIAL ON THE DESIGN AND ANALYSIS OF ALGORITHMS, INCLUDING

TURING MACHINES, ASYMPTOTIC ANALYSIS, AND PARALLEL ALGORITHMS; INCLUDES REFERENCE LISTS OF TRIGONOMETRIC AND FINITE SUMMATION FORMULAE IN AN APPENDIX, TOGETHER WITH BASIC RULES FOR DIFFERENTIAL AND INTEGRAL CALCULUS. THIS HANDS-ON WORKBOOK IS AN INVALUABLE RESOURCE FOR UNDERGRADUATE STUDENTS OF COMPUTER SCIENCE, INFORMATICS, AND ELECTRONIC ENGINEERING. SUITABLE FOR USE IN A ONE- OR TWO-SEMESTER COURSE ON DISCRETE MATHEMATICS, THE TEXT EMPHASIZES THE SKILLS REQUIRED TO DEVELOP AND IMPLEMENT AN ALGORITHM IN A SPECIFIC PROGRAMMING LANGUAGE.

DISCRETE MATHEMATICAL STRUCTURES - BERNARD KOLMAN 2004

COMBINING A CAREFUL SELECTION OF TOPICS WITH COVERAGE OF THEIR GENUINE APPLICATIONS IN COMPUTER SCIENCE, THIS BOOK, MORE THAN ANY OTHER IN THIS FIELD, IS CLEARLY AND CONCISELY WRITTEN, PRESENTING THE BASIC IDEAS OF DISCRETE MATHEMATICAL STRUCTURES IN A MANNER THAT IS UNDERSTANDABLE. LIMITING ITS SCOPE AND DEPTH OF TOPICS TO THOSE THAT READERS CAN ACTUALLY UTILIZE, THIS BOOK COVERS FIRST THE FUNDAMENTALS, THEN FOLLOWS WITH LOGIC, COUNTING, RELATIONS AND DIGRAPHS, FUNCTIONS, ORDER RELATIONS AND STRUCTURES, TREES, GRAPH THEORY, SEMIGROUPS AND GROUPS, LANGUAGES AND FINITE-STATE MACHINES, AND GROUPS AND CODING. WITH ITS COMPREHENSIVE APPENDICES AND INDEX, THIS BOOK CAN BE AN EXCELLENT REFERENCE WORK FOR MATHEMATICIANS AND THOSE IN THE FIELD OF COMPUTER SCIENCE.

INTRODUCTION TO MATHEMATICAL LOGIC, FOURTH EDITION - ELLIOTT MENDELSON 1997-06-01

THE FOURTH EDITION OF THIS LONG-ESTABLISHED TEXT RETAINS ALL THE KEY FEATURES OF THE PREVIOUS EDITIONS, COVERING THE BASIC TOPICS OF A SOLID FIRST COURSE IN MATHEMATICAL LOGIC. THIS EDITION INCLUDES AN EXTENSIVE APPENDIX ON SECOND-ORDER LOGIC, A SECTION ON SET THEORY WITH URLEMENTS, AND A SECTION ON THE LOGIC THAT RESULTS WHEN WE ALLOW MODELS WITH EMPTY DOMAINS. THE TEXT CONTAINS NUMEROUS EXERCISES AND AN APPENDIX FURNISHES ANSWERS TO MANY OF THEM. INTRODUCTION TO MATHEMATICAL LOGIC INCLUDES: PROPOSITIONAL LOGIC FIRST-ORDER LOGIC FIRST-ORDER NUMBER THEORY AND THE INCOMPLETENESS AND UNDECIDABILITY THEOREMS OF G ω DEL, ROSSER, CHURCH, AND TARSKI AXIOMATIC SET THEORY THEORY OF COMPUTABILITY THE STUDY OF MATHEMATICAL LOGIC, AXIOMATIC SET THEORY, AND COMPUTABILITY THEORY PROVIDES AN UNDERSTANDING OF THE FUNDAMENTAL ASSUMPTIONS AND PROOF TECHNIQUES THAT FORM BASIS OF MATHEMATICS. LOGIC AND COMPUTABILITY THEORY HAVE ALSO BECOME INDISPENSABLE TOOLS IN THEORETICAL COMPUTER SCIENCE, INCLUDING ARTIFICIAL INTELLIGENCE. INTRODUCTION TO MATHEMATICAL LOGIC COVERS THESE TOPICS IN A CLEAR, READER-FRIENDLY STYLE THAT WILL BE VALUED BY ANYONE WORKING IN COMPUTER SCIENCE AS WELL AS LECTURERS AND RESEARCHERS IN MATHEMATICS, PHILOSOPHY, AND RELATED FIELDS.

DISCRETE MATHEMATICS - IYENGAR, N.CH. S.N./CHANDRASEKARAN V.M./VENKALESH K.A. & ARUNACHALAM P.S. 2003-11-01 STUDENT-FRIENDLY AND COMPREHENSIVE, THIS BOOK COVERS TOPICS SUCH AS MATHEMATICAL LOGIC, SET THEORY, ALGEBRAIC SYSTEMS, BOOLEAN ALGEBRA AND GRAPH THEORY THAT ARE ESSENTIAL TO THE STUDY OF COMPUTER SCIENCE IN GREAT DETAIL. *ESSENTIAL DISCRETE MATHEMATICS FOR COMPUTER SCIENCE* - HARRY LEWIS 2019-03-19

DISCRETE MATHEMATICS IS THE BASIS OF MUCH OF COMPUTER SCIENCE, FROM ALGORITHMS AND AUTOMATA THEORY TO COMBINATORICS AND GRAPH THEORY. *ESSENTIAL DISCRETE MATHEMATICS FOR COMPUTER SCIENCE* AIMS TO TEACH MATHEMATICAL REASONING AS WELL AS CONCEPTS AND SKILLS BY STRESSING THE ART OF PROOF. IT IS FULLY ILLUSTRATED IN COLOR, AND EACH CHAPTER INCLUDES A CONCISE SUMMARY AS WELL AS A SET OF EXERCISES.

MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE, Second Edition - BATHUL, SHAHNAZ 2015-10-31

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.

INTRODUCTORY DISCRETE MATHEMATICS - V. K . BALAKRISHNAN 2012-04-30

THIS CONCISE, UNDERGRADUATE-LEVEL TEXT FOCUSES ON COMBINATORICS, GRAPH THEORY WITH APPLICATIONS TO SOME STANDARD NETWORK OPTIMIZATION PROBLEMS, AND ALGORITHMS. MORE THAN 200 EXERCISES, MANY WITH COMPLETE SOLUTIONS. 1991 EDITION.

WRITE YOUR OWN PROOFS - AMY BABICH 2019-08-14

WRITTEN BY A PAIR OF MATH TEACHERS AND BASED ON THEIR CLASSROOM NOTES AND EXPERIENCES, THIS INTRODUCTORY TREATMENT OF THEORY, PROOF TECHNIQUES, AND RELATED CONCEPTS IS DESIGNED FOR UNDERGRADUATE COURSES. NO KNOWLEDGE OF CALCULUS IS ASSUMED, MAKING IT A USEFUL TEXT FOR STUDENTS AT MANY LEVELS. THE FOCUS IS ON TEACHING STUDENTS TO PROVE THEOREMS AND WRITE MATHEMATICAL PROOFS SO THAT OTHERS CAN READ THEM. SINCE PROVING THEOREMS TAKES LOTS OF PRACTICE, THIS TEXT IS DESIGNED TO PROVIDE PLENTY OF EXERCISES. THE AUTHORS BREAK THE THEOREMS INTO PIECES AND WALK READERS THROUGH EXAMPLES, ENCOURAGING THEM TO USE MATHEMATICAL NOTATION AND WRITE PROOFS THEMSELVES. TOPICS INCLUDE PROPOSITIONAL LOGIC, SET NOTATION, BASIC SET THEORY PROOFS, RELATIONS, FUNCTIONS, INDUCTION, COUNTABILITY, AND SOME COMBINATORICS, INCLUDING A SMALL AMOUNT OF PROBABILITY. THE TEXT IS IDEAL FOR COURSES IN DISCRETE MATHEMATICS OR LOGIC AND SET THEORY, AND ITS ACCESSIBILITY MAKES THE BOOK EQUALLY SUITABLE FOR CLASSES IN MATHEMATICS FOR LIBERAL ARTS STUDENTS OR COURSES GEARED TOWARD PROOF WRITING IN MATHEMATICS.

SCHAUM'S OUTLINE OF DISCRETE MATHEMATICS - SEYMOR LIPSCHUTZ 1997-06-22

THE FIRST EDITION OF THIS BOOK SOLD MORE THAN 100,000 COPIES—AND THIS NEW EDITION WILL SHOW YOU WHY! SCHAUM'S OUTLINE OF DISCRETE MATHEMATICS SHOWS YOU STEP BY STEP HOW TO SOLVE THE KIND OF PROBLEMS YOU'RE GOING TO FIND ON YOUR EXAMS. AND THIS NEW EDITION FEATURES ALL THE LATEST APPLICATIONS OF DISCRETE MATHEMATICS TO COMPUTER SCIENCE! THIS GUIDE CAN BE USED AS A SUPPLEMENT, TO REINFORCE AND STRENGTHEN THE WORK YOU DO WITH YOUR CLASS TEXT. (IT WORKS WELL WITH VIRTUALLY ANY DISCRETE MATHEMATICS TEXTBOOK.) BUT IT IS SO COMPREHENSIVE THAT IT CAN EVEN BE USED ALONE AS A TEXT IN DISCRETE MATHEMATICS OR AS INDEPENDENT STUDY TOOL!

DISCRETE MATHEMATICS IN COMPUTER SCIENCE - DONALD F. STANAT 1977

DISCRETE MATHEMATICS USING A COMPUTER - JOHN O'DONNELL 2009-10-12

COMPUTER SCIENCE ABOUNDS WITH APPLICATIONS OF DISCRETE MATHEMATICS, YET STUDENTS OF COMPUTER SCIENCE OFTEN STUDY DISCRETE MATHEMATICS IN THE CONTEXT OF PURELY MATHEMATICAL APPLICATIONS. THEY HAVE TO FIGURE OUT FOR THEMSELVES HOW TO APPLY THE IDEAS OF DISCRETE MATHEMATICS TO COMPUTING PROBLEMS. IT IS NOT EASY. MOST STUDENTS FAIL TO EXPERIENCE BROAD SUCCESS IN THIS ENTERPRISE, WHICH IS NOT SURPRISING, SINCE MANY OF THE MOST IMPORTANT ADVANCES IN SCIENCE AND ENGINEERING HAVE BEEN, PRECISELY, APPLICATIONS OF MATHEMATICS TO SPECIFIC SCIENCE AND ENGINEERING PROBLEMS. TO BE SURE, MOST DISCRETE MATH TEXTBOOKS INCORPORATE SOME ASPECTS APPLYING DISCRETE MATH TO COMPUTING, BUT IT USUALLY TAKES THE FORM OF ASKING STUDENTS TO WRITE PROGRAMS TO COMPUTE THE NUMBER OF THREE-BALL COMBINATIONS THERE ARE IN A SET OF TEN BALLS OR, AT BEST, TO IMPLEMENT A GRAPH ALGORITHM. FEW TEXTS ASK STUDENTS TO USE MATHEMATICAL LOGIC TO ANALYZE PROPERTIES OF DIGITAL CIRCUITS OR COMPUTER PROGRAMS OR TO APPLY THE SET THEORETIC MODEL OF FUNCTIONS TO UNDERSTAND HIGHER-ORDER OPERATIONS. A MAJOR AIM OF THIS TEXT IS TO INTEGRATE, TIGHTLY, THE STUDY OF DISCRETE MATHEMATICS WITH THE STUDY OF CENTRAL PROBLEMS OF COMPUTER SCIENCE.

DISCRETE MATHEMATICS - OSCAR LEVIN 2018-12-31

NOTE: THIS IS THE 3RD EDITION. IF YOU NEED THE 2ND EDITION FOR A COURSE YOU ARE TAKING, IT CAN BE FOUND AS A "OTHER FORMAT" ON AMAZON, OR BY SEARCHING ITS ISBN: 1534970746 THIS GENTLE INTRODUCTION TO DISCRETE MATHEMATICS IS WRITTEN FOR FIRST AND SECOND YEAR MATH MAJORS, ESPECIALLY THOSE WHO INTEND TO TEACH. THE TEXT BEGAN AS A SET OF LECTURE NOTES FOR THE DISCRETE MATHEMATICS COURSE AT THE UNIVERSITY OF NORTHERN COLORADO. THIS COURSE SERVES BOTH AS AN INTRODUCTION TO TOPICS IN DISCRETE MATH AND AS THE "INTRODUCTION TO PROOF" COURSE FOR MATH MAJORS. THE COURSE IS USUALLY TAUGHT WITH A LARGE AMOUNT OF STUDENT INQUIRY, AND THIS TEXT IS WRITTEN TO HELP FACILITATE THIS. FOUR MAIN TOPICS ARE COVERED: COUNTING, SEQUENCES, LOGIC, AND GRAPH THEORY. ALONG THE WAY PROOFS ARE INTRODUCED, INCLUDING PROOFS BY CONTRADICTION, PROOFS BY INDUCTION, AND COMBINATORIAL PROOFS. THE BOOK CONTAINS OVER 470 EXERCISES, INCLUDING 275 WITH SOLUTIONS AND OVER 100 WITH HINTS. THERE ARE ALSO INVESTIGATE! ACTIVITIES THROUGHOUT THE TEXT TO SUPPORT ACTIVE, INQUIRY BASED LEARNING. WHILE THERE ARE MANY FINE DISCRETE MATH TEXTBOOKS AVAILABLE, THIS TEXT HAS THE FOLLOWING ADVANTAGES: IT IS WRITTEN TO BE USED IN AN INQUIRY RICH COURSE. IT IS WRITTEN TO BE USED IN A COURSE FOR FUTURE MATH TEACHERS. IT IS OPEN SOURCE, WITH LOW COST PRINT EDITIONS AND FREE ELECTRONIC EDITIONS. THIS THIRD EDITION BRINGS IMPROVED EXPOSITION, A NEW SECTION ON TREES, AND A BUNCH OF NEW AND IMPROVED EXERCISES. FOR A COMPLETE LIST OF CHANGES, AND TO VIEW THE FREE ELECTRONIC VERSION OF THE TEXT, VISIT THE BOOK'S WEBSITE AT DISCRETE.OPENMATHBOOKS.ORG

DISCRETE MATHEMATICS - JAMES L. HEIN 2003

WINNER AT THE 46TH ANNUAL NEW ENGLAND BOOK SHOW (2003) IN THE "COLLEGE COVERS & JACKETS" CATEGORY THIS INTRODUCTION TO DISCRETE MATHEMATICS PREPARES FUTURE COMPUTER SCIENTISTS, ENGINEERS, AND MATHEMATICIANS FOR SUCCESS BY PROVIDING EXTENSIVE AND CONCENTRATED COVERAGE OF LOGIC, FUNCTIONS, ALGORITHMIC ANALYSIS, AND ALGEBRAIC STRUCTURES. DISCRETE MATHEMATICS, SECOND EDITION ILLUSTRATES THE RELATIONSHIPS BETWEEN KEY CONCEPTS THROUGH ITS THEMATIC ORGANIZATION AND PROVIDES A SEAMLESS TRANSITION BETWEEN SUBJECTS. DISTINCT FOR THE DEPTH WITH WHICH IT COVERS LOGIC, THIS TEXT EMPHASIZES PROBLEM SOLVING AND THE APPLICATION OF THEORY AS IT CAREFULLY GUIDES THE READER FROM BASIC TO MORE COMPLEX TOPICS. DISCRETE MATHEMATICS IS AN IDEAL RESOURCE FOR DISCOVERING THE FUNDAMENTALS OF DISCRETE MATH. DISCRETE MATHEMATICS, SECOND EDITION IS DESIGNED FOR AN INTRODUCTORY COURSE IN DISCRETE MATHEMATICS FOR THE PROSPECTIVE COMPUTER SCIENTIST, APPLIED MATHEMATICIAN, OR ENGINEER WHO WANTS TO LEARN HOW THE IDEAS APPLY TO COMPUTER SCIENCES. THE CHOICE OF TOPICS—AND THE BREADTH OF COVERAGE—REFLECTS THE DESIRE TO PROVIDE STUDENTS WITH THE FOUNDATIONS NEEDED TO SUCCESSFULLY COMPLETE COURSES AT THE UPPER DIVISION LEVEL IN UNDERGRADUATE COMPUTER SCIENCE COURSES. THIS BOOK DIFFERS IN SEVERAL WAYS FROM CURRENT BOOKS ABOUT DISCRETE MATHEMATICS. IT PRESENTS AN ELEMENTARY AND UNIFIED

INTRODUCTION TO A COLLECTION OF TOPICS THAT HAS NOT BEEN AVAILABLE IN A SINGLE SOURCE. A MAJOR FEATURE OF THE BOOK IS THE UNIFICATION OF THE MATERIAL SO THAT IT DOES NOT FRAGMENT INTO A COLLECTION OF SEEMINGLY UNRELATED IDEAS.

DISCRETE MATHEMATICS USING A COMPUTER - CORDELIA HALL 2013-04-17

SEVERAL AREAS OF MATHEMATICS FIND APPLICATION THROUGHOUT COMPUTER SCIENCE, AND ALL STUDENTS OF COMPUTER SCIENCE NEED A PRACTICAL WORKING UNDERSTANDING OF THEM. THESE CORE SUBJECTS ARE CENTRED ON LOGIC, SETS, RECURSION, INDUCTION, RELATIONS AND FUNCTIONS. THE MATERIAL IS OFTEN CALLED DISCRETE MATHEMATICS, TO DISTINGUISH IT FROM THE TRADITIONAL TOPICS OF CONTINUOUS MATHEMATICS SUCH AS INTEGRATION AND DIFFERENTIAL EQUATIONS. THE CENTRAL THEME OF THIS BOOK IS THE CONNECTION BETWEEN COMPUTING AND DISCRETE MATHEMATICS. THIS CONNECTION IS USEFUL IN BOTH DIRECTIONS: • MATHEMATICS IS USED IN MANY BRANCHES OF COMPUTER SCIENCE, IN APPLICATIONS INCLUDING PROGRAM SPECIFICATION, DATA STRUCTURES, DESIGN AND ANALYSIS OF ALGORITHMS, DATABASE SYSTEMS, HARDWARE DESIGN, REASONING ABOUT THE CORRECTNESS OF IMPLEMENTATIONS, AND MUCH MORE; • COMPUTERS CAN HELP TO MAKE THE MATHEMATICS EASIER TO LEARN AND USE, BY MAKING MATHEMATICAL TERMS EXECUTABLE, MAKING ABSTRACT CONCEPTS MORE CONCRETE, AND THROUGH THE USE OF SOFTWARE TOOLS SUCH AS PROOF CHECKERS. THESE CONNECTIONS ARE EMPHASISED THROUGHOUT THE BOOK. SOFTWARE TOOLS (SEE APPENDIX A) ENABLE THE COMPUTER TO SERVE AS A CALCULATOR, BUT INSTEAD OF JUST DOING ARITHMETIC AND TRIGONOMETRIC FUNCTIONS, IT WILL BE USED TO CALCULATE WITH SETS, RELATIONS, FUNCTIONS, PREDICATES AND INFERENCES. THERE ARE ALSO SPECIAL SOFTWARE TOOLS, FOR EXAMPLE A PROOF CHECKER FOR LOGICAL PROOFS USING NATURAL DEDUCTION.

DISCRETE MATHEMATICS FOR COMPUTER SCIENCE - GARY HAGGARD 2005

MASTER THE FUNDAMENTALS OF DISCRETE MATHEMATICS WITH DISCRETE MATHEMATICS FOR COMPUTER SCIENCE WITH STUDENT SOLUTIONS MANUAL CD-ROM! AN INCREASING NUMBER OF COMPUTER SCIENTISTS FROM DIVERSE AREAS ARE USING DISCRETE MATHEMATICAL STRUCTURES TO EXPLAIN CONCEPTS AND PROBLEMS AND THIS MATHEMATICS TEXT SHOWS YOU HOW TO EXPRESS PRECISE IDEAS IN CLEAR MATHEMATICAL LANGUAGE. THROUGH A WEALTH OF EXERCISES AND EXAMPLES, YOU WILL LEARN HOW MASTERING DISCRETE MATHEMATICS WILL HELP YOU DEVELOP IMPORTANT REASONING SKILLS THAT WILL CONTINUE TO BE USEFUL THROUGHOUT YOUR CAREER.

DISCRETE MATHEMATICS FOR COMPUTER SCIENTIST - ALI SELAMAT 2012

THIS BOOK SERVES AS AN INTRODUCTION TO COMPUTER SCIENCES STUDENTS IN THE UNDERGRADUATE LEVELS. IT WILL BE USED AS THE FOUNDATION TO UNDERSTAND THE DISCRETE MATHEMATIC IN DEVELOPING THE LOGIC OF COMPUTER PROGRAMS. SINCE THERE ARE ALSO SIMILAR UNDERGRADUATE COMPUTER SCIENCE PROGRAMMES IN OTHER LOCAL AND OVERSEAS INSTITUTIONS, THIS BOOK IS EXPECTED TO FIND WIDER LOCAL AND INTERNATIONAL READERSHIP. TOPICS COVERED IN THIS BOOK INCLUDE SET THEORY AND RELATIONS, FUNCTIONS SEQUENCE AND STRING, PROPOSITIONAL LOGIC, PREDICATE LOGIC, MATRICES, GRAPH THEORY AND TREES. AS THE BOOK SERVES AS AN INTRODUCTORY LEVEL TO COMPUTER SCIENCE STUDENTS, IT IS EXPECTED THAT ONCE THE STUDENTS ARE ALREADY FAMILIAR WITH THE PRESENTED CONTENTS, IT WILL ENABLE THEM TO UNDERSTAND THE ADVANCED TOPICS IN COMPUTER SCIENCE SUCH AS ADVANCED THEORY OF COMPUTER SCIENCE AND COMPUTATIONAL COMPLEXITY THEORIES. THE CHAPTERS IN THIS BOOK HAVE BEEN ORGANIZED FOR THE STUDENTS TO LEARN AND UNDERSTAND THE MAIN CONCEPTS OF DISCRETE MATHEMATICS FOR DEVELOPING COMPUTER APPLICATIONS DURING THE PERIOD OF THEIR STUDIES. IN INFORMATION TECHNOLOGY (IT) AND COMPUTER SCIENCE FIELDS, MOST OF INFORMATION IS REPRESENTED IN DIGITAL ELECTRONICS BASED ON THE BASIC KNOWLEDGE OF DISCRETE MATHEMATICS. THEREFORE, DISCRETE MATHEMATICS IS ONE OF THE RELEVANT COURSES TO SUPPORT STUDENTS FOR BETTER LEARNING AND UNDERSTANDING THE NATURE OF COMPUTER SCIENCE AND IT. IT IS EXPECTED THAT BY USING THE MATERIALS PRESENTED IN THIS BOOK STUDENTS SHOULD BE ABLE TO WRITE STATEMENTS USING MATHEMATICAL LANGUAGE, DEVELOP MATHEMATICAL ARGUMENTS USING LOGIC, APPLY THE CONCEPT OF INTEGERS AND ITS ROLE IN MODELING AND SOLVING PROBLEMS IN IT, AND APPLY THE CONCEPT OF GRAPH AND TREE FOR MODELING AND SOLVING PROBLEMS RELATED TO REAL SITUATIONS.

FINITE AND INFINITE COMBINATORICS IN SETS AND LOGIC - NORBERT W SAUER 1993-07-31

THIS VOLUME CONTAINS THE ACCOUNTS OF PAPERS DELIVERED AT THE NATO ADVANCED STUDY INSTITUTE ON FINITE AND INFINITE COMBINATORICS IN SETS AND LOGIC HELD AT THE BANFF CENTRE, ALBERTA, CANADA FROM APRIL 21 TO MAY 4, 1991. AS THE TITLE SUGGESTS THE MEETING BROUGHT TOGETHER WORKERS INTERESTED IN THE INTERPLAY BETWEEN FINITE AND INFINITE COMBINATORICS, SET THEORY, GRAPH THEORY AND LOGIC. IT USED TO BE THAT INFINITE SET THEORY, FINITE COMBINATORICS AND LOGIC COULD BE VIEWED AS QUITE SEPARATE AND INDEPENDENT SUBJECTS. BUT MORE AND MORE THOSE DISCIPLINES GROW TOGETHER AND BECOME INTERDEPENDENT OF EACH OTHER WITH EVER MORE PROBLEMS AND RESULTS APPEARING WHICH CONCERN ALL OF THOSE DISCIPLINES. I APPRECIATE THE FINANCIAL SUPPORT WHICH WAS PROVIDED BY THE N. A. T. O. ADVANCED STUDY INSTITUTE PROGRAMME, THE NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL OF CANADA AND THE DEPARTMENT OF MATHEMATICS AND STATISTICS OF THE UNIVERSITY OF CALGARY. THE MEETING ON FINITE AND INFINITE COMBINATORICS IN SETS AND LOGIC FOLLOWED TWO OTHER MEETINGS ON DISCRETE MATHEMATICS HELD IN BANFF, THE SYMPOSIUM ON ORDERED SETS IN 1981 AND THE SYMPOSIUM ON GRAPHS AND ORDER IN 1984. THE GROWING INTER-RELATION BETWEEN THE DIFFERENT AREAS IN DISCRETE MATHEMATICS IS MAYBE BEST ILLUSTRATED BY THE FACT THAT MANY OF THE PARTICIPANTS WHO WERE PRESENT AT THE PREVIOUS MEETINGS ALSO ATTENDED THIS MEETING ON FINITE AND INFINITE COMBINATORICS IN SETS AND LOGIC.

LOGIC AND DISCRETE MATHEMATICS - WILLEM CONRADIE 2015-06-15

A CONCISE YET RIGOROUS INTRODUCTION TO LOGIC AND DISCRETE MATHEMATICS. THIS BOOK FEATURES A UNIQUE COMBINATION OF COMPREHENSIVE COVERAGE OF LOGIC WITH A SOLID EXPOSITION OF THE MOST IMPORTANT FIELDS OF DISCRETE MATHEMATICS, PRESENTING MATERIAL THAT HAS BEEN TESTED AND REFINED BY THE AUTHORS IN UNIVERSITY COURSES TAUGHT OVER MORE THAN A DECADE. THE CHAPTERS ON LOGIC - PROPOSITIONAL AND FIRST-ORDER - PROVIDE A ROBUST TOOLKIT FOR LOGICAL REASONING,

EMPHASIZING THE CONCEPTUAL UNDERSTANDING OF THE LANGUAGE AND THE SEMANTICS OF CLASSICAL LOGIC AS WELL AS PRACTICAL APPLICATIONS THROUGH THE EASY TO UNDERSTAND AND USE DEDUCTIVE SYSTEMS OF SEMANTIC TABLEAUX AND RESOLUTION. THE CHAPTERS ON SET THEORY, NUMBER THEORY, COMBINATORICS AND GRAPH THEORY COMBINE THE NECESSARY MINIMUM OF THEORY WITH NUMEROUS EXAMPLES AND SELECTED APPLICATIONS. WRITTEN IN A CLEAR AND READER-FRIENDLY STYLE, EACH SECTION ENDS WITH AN EXTENSIVE SET OF EXERCISES, MOST OF THEM PROVIDED WITH COMPLETE SOLUTIONS WHICH ARE AVAILABLE IN THE ACCOMPANYING SOLUTIONS MANUAL. KEY FEATURES: SUITABLE FOR A VARIETY OF COURSES FOR STUDENTS IN BOTH MATHEMATICS AND COMPUTER SCIENCE. EXTENSIVE, IN-DEPTH COVERAGE OF CLASSICAL LOGIC, COMBINED WITH A SOLID EXPOSITION OF A SELECTION OF THE MOST IMPORTANT FIELDS OF DISCRETE MATHEMATICS CONCISE, CLEAR AND UNCLUTTERED PRESENTATION WITH NUMEROUS EXAMPLES. COVERS SOME APPLICATIONS INCLUDING CRYPTOGRAPHIC SYSTEMS, DISCRETE PROBABILITY AND NETWORK ALGORITHMS. LOGIC AND DISCRETE MATHEMATICS: A CONCISE INTRODUCTION IS AIMED MAINLY AT UNDERGRADUATE COURSES FOR STUDENTS IN MATHEMATICS AND COMPUTER SCIENCE, BUT THE BOOK WILL ALSO BE A VALUABLE RESOURCE FOR GRADUATE MODULES AND FOR SELF-STUDY.

DISCRETE STRUCTURES - SATINDER BAL GUPTA 2010-05

THIS BOOK HAS BEEN WRITTEN ACCORDING TO THE LATEST SYLLABI FOR B. TECH. & M.C.A. COURSES OF PUNJAB TECHNICAL UNIVERSITY AND OTHER TECHNICAL UNIVERSITIES OF INDIA. THE PREVIOUS YEARS' UNIVERSITY QUESTIONS PAPERS HAVE BEEN SOLVED SYSTEMATICALLY AND LOGICALLY IN EACH CHAPTER. IT IS INTENDED TO HELP STUDENTS BETTER UNDERSTAND THE CONCEPTS AND IDEAS OF DISCRETE STRUCTURES.

FUNDAMENTALS OF DISCRETE MATH FOR COMPUTER SCIENCE - TOM JENKYNs 2018-05-03

THIS CLEARLY WRITTEN TEXTBOOK PRESENTS AN ACCESSIBLE INTRODUCTION TO DISCRETE MATHEMATICS FOR COMPUTER SCIENCE STUDENTS, OFFERING THE READER AN ENJOYABLE AND STIMULATING PATH TO IMPROVE THEIR PROGRAMMING COMPETENCE. THE TEXT EMPOWERS STUDENTS TO THINK CRITICALLY, TO BE EFFECTIVE PROBLEM SOLVERS, TO INTEGRATE THEORY AND PRACTICE, AND TO RECOGNIZE THE IMPORTANCE OF ABSTRACTION. ITS MOTIVATIONAL AND INTERACTIVE STYLE PROVOKES A CONVERSATION WITH THE READER THROUGH A QUESTIONING COMMENTARY, AND SUPPLIES DETAILED WALKTHROUGHS OF SEVERAL ALGORITHMS. THIS UPDATED AND ENHANCED NEW EDITION ALSO INCLUDES NEW MATERIAL ON DIRECTED GRAPHS, AND ON DRAWING AND COLORING GRAPHS, IN ADDITION TO MORE THAN 100 NEW EXERCISES (WITH SOLUTIONS TO SELECTED EXERCISES). TOPICS AND FEATURES: ASSUMES NO PRIOR MATHEMATICAL KNOWLEDGE, AND DISCUSSES CONCEPTS IN PROGRAMMING AS AND WHEN THEY ARE NEEDED; DESIGNED FOR BOTH CLASSROOM USE AND SELF-STUDY, PRESENTING MODULAR AND SELF-CONTAINED CHAPTERS THAT FOLLOW ACM CURRICULUM RECOMMENDATIONS; DESCRIBES MATHEMATICAL PROCESSES IN AN ALGORITHMIC MANNER, OFTEN SUPPORTED BY A WALKTHROUGH DEMONSTRATING HOW THE ALGORITHM PERFORMS THE DESIRED TASK; INCLUDES AN EXTENSIVE SET OF EXERCISES THROUGHOUT THE TEXT, TOGETHER WITH NUMEROUS EXAMPLES, AND SHADED BOXES HIGHLIGHTING KEY CONCEPTS; SELECTS EXAMPLES THAT DEMONSTRATE A PRACTICAL USE FOR THE CONCEPT IN QUESTION. STUDENTS EMBARKING ON THE START OF THEIR STUDIES OF COMPUTER SCIENCE WILL FIND THIS BOOK TO BE AN EASY-TO-UNDERSTAND AND FUN-TO-READ PRIMER, IDEAL FOR USE IN A MATHEMATICS COURSE TAKEN CONCURRENTLY WITH THEIR FIRST PROGRAMMING COURSE.

FUNDAMENTAL APPROACH TO DISCRETE MATHEMATICS - D.P. ACHARJYA 2005

SALIENT FEATURES * MATHEMATICAL LOGIC, FUNDAMENTAL CONCEPTS, PROOFS AND MATHEMATICAL INDUCTION (CHAPTER 1) * SET THEORY, FUNDAMENTAL CONCEPTS, THEOREMS, PROOFS, VENN DIAGRAMS, PRODUCT OF SETS, APPLICATION OF SET THEORY AND FUNDAMENTAL PRODUCTS (CHAPTER 2) * AN INTRODUCTION TO BINARY RELATIONS AND CONCEPTS, GRAPHS, ARROW DIAGRAMS, RELATION MATRIX, COMPOSITION OF RELATIONS, TYPES OF RELATION, PARTIAL ORDER RELATIONS, TOTAL ORDER RELATION, CLOSURE OF RELATIONS, POSET, EQUIVALENCE CLASSES AND PARTITIONS. (CHAPTER 3) * AN INTRODUCTION TO FUNCTIONS AND BASIC CONCEPTS, GRAPHS, COMPOSITION OF FUNCTIONS, FLOOR AND CEILING FUNCTION, CHARACTERISTIC FUNCTION, REMAINDER FUNCTION, SIGNUM FUNCTION AND INTRODUCTION TO HASH FUNCTION. (CHAPTER 4) * THE ALGEBRAIC STRUCTURE INCLUDES GROUP THEORY AND RING THEORY. GROUP THEORY INCLUDES GROUP, SUBGROUPS, CYCLIC GROUP, COSETS, HOMOMORPHISM, INTRODUCTION TO CODES AND GROUP CODES AND ERROR CORRECTION FOR BLOCK CODE. THE RING THEORY INCLUDES GENERAL DEFINITION, FUNDAMENTAL CONCEPTS, INTEGRAL DOMAIN, DIVISION RING, SUBRING, HOMOMORPHISM, AN ISOMORPHISM AND PIGEONHOLE PRINCIPLE (CHAPTERS 5, 6 AND 7) * A TREATMENT OF BOOLEAN ALGEBRAS THAT EMPHASIZES THE RELATION OF BOOLEAN ALGEBRAS TO COMBINATORIAL CIRCUITS. (CHAPTER 8) * AN INTRODUCTION TO LATTICES AND BASIC CONCEPTS (CHAPTER 9) * A BRIEF INTRODUCTION TO GRAPH THEORY IS DISCUSSED. ELEMENTS OF GRAPH THEORY ARE INDISPENSABLE IN ALMOST ALL COMPUTER SCIENCE AREAS. EXAMPLES ARE GIVEN OF ITS USE IN SUCH AREAS AS MINIMUM SPANNING TREE, SHORTEST PATH PROBLEMS (DIJKASTRA'S ALGORITHM AND FLOYD-WARSHALL ALGORITHM) AND TRAVELING SALESMAN PROBLEM. THE COMPUTER REPRESENTATION AND MANIPULATION OF GRAPHS ARE ALSO DISCUSSED SO THAT CERTAIN IMPORTANT ALGORITHMS CAN BE INCLUDED (CHAPTERS 10 AND 11) * A STRONG EMPHASIS IS GIVEN ON UNDERSTANDING THE THEOREMS AND ITS APPLICATIONS * NUMBERS OF ILLUSTRATIONS ARE USED THROUGHOUT THE BOOK FOR EXPLAINING THE CONCEPTS AND ITS APPLICATIONS. * FIGURES AND TABLES ARE USED TO ILLUSTRATE CONCEPTS, TO ELUCIDATE PROOFS AND TO MOTIVATE THE MATERIAL. THE CAPTIONS OF THESE FIGURES PROVIDE ADDITIONAL EXPLANATION. BESIDES THIS, A NUMBER OF EXERCISES ARE GIVEN FOR PRACTICE

DISCRETE STRUCTURE AND AUTOMATA THEORY FOR LEARNERS - DR. UMESH GILL SEHGAL, MS. SUKHPREET KAUR 2020-09-05

LEARN TO IDENTIFY THE IMPLEMENTATION OF DISCRETE STRUCTURE AND THEORY OF AUTOMATA IN A MYRIAD OF APPLICATIONS USED IN DAY TO DAY LIFE KEY FEATURES A- LEARN HOW TO WRITE AN ARGUMENT USING LOGICAL NOTATION AND DECIDE IF THE ARGUMENT IS VALID OR NOT VALID. A- LEARN HOW TO USE THE CONCEPT OF DIFFERENT DATA STRUCTURES (STACKS, QUEUES, SORTING CONCEPT, ETC.) IN THE COMPUTER SCIENCE FIELD. A- LEARN HOW TO USE AUTOMATA MACHINES LIKE FSM, PUSHDOWN AUTOMATA, TURING MACHINE, ETC. IN VARIOUS APPLICATIONS RELATED TO COMPUTER SCIENCE THROUGH SUITABLE PRACTICAL ILLUSTRATION. A- LEARN HOW

TO IMPLEMENT THE FINITE STATE MACHINE USING JFLAP (JAVA FORMAL LANGUAGES AND AUTOMATA PACKAGE). DESCRIPTION THIS BOOK'S PURPOSE IS TO PROVIDE A MODERN AND COMPREHENSIVE INTRODUCTION TO THE SUBJECT OF DISCRETE STRUCTURES AND AUTOMATA THEORY. DISCRETE STRUCTURES, ALSO CALLED DISCRETE MATHEMATICS, ARE AN EXCITING AND ACTIVE SUBJECT, PARTICULARLY DUE TO ITS EXTREME RELEVANCE TO BOTH MATHEMATICS AND COMPUTER SCIENCE AND ALGORITHMS. THIS SUBJECT FORMS A COMMON FOUNDATION FOR RIGOROUS MATHEMATICAL, LOGICAL REASONING AND PROOFS, AS WELL AS A FORMAL INTRODUCTION TO ABSTRACT OBJECTS THAT ARE ESSENTIAL TOOLS IN AN ASSORTMENT OF APPLICATIONS AND EFFECTIVE COMPUTER IMPLEMENTATIONS. COMPUTING SKILLS ARE NOW AN INTEGRAL PART OF ALMOST ALL THE SCIENTIFIC FIELDS, AND STUDENTS ARE VERY ENTHUSIASTIC ABOUT BEING ABLE TO HARNESS THE FULL COMPUTING POWER OF THESE TOOLS. FURTHER, THIS BOOK ALSO DEEP DIVES INTO THE AUTOMATA THEORY WITH VARIOUS EXAMPLES THAT ILLUSTRATE THE BASIC CONCEPTS AND IS SUBSTANTIATED WITH MULTIPLE DIAGRAMS. THE BOOK'S VITAL FEATURE IS THAT IT CONTAINS THE PRACTICAL IMPLEMENTATION OF THE AUTOMATA MACHINE EXAMPLE THROUGH THE JFLAP TOOL. COURSES ON DISCRETE STRUCTURES AND AUTOMATA THEORY ARE OFFERED AT MOST UNIVERSITIES AND COLLEGES. WHAT WILL YOU LEARN A- UNDERSTAND THE BASIC CONCEPTS OF SETS AND OPERATIONS IN SETS. A- DEMONSTRATE DIFFERENT TRAVERSAL TECHNIQUES FOR TREES AND GRAPHS. A- DEEP DIVE INTO THE CONCEPT OF MATHEMATICAL INDUCTION, SETS, RELATIONS, FUNCTIONS, RECURSION, GRAPHS, TREES, BOOLEAN ALGEBRA, AND PROOF TECHNIQUES. A- UNDERSTAND THE CONCEPT OF AUTOMATA MACHINES IN DAY TO DAY LIFE LIKE THE ELEVATOR, TURNSTILE, GENETIC ALGORITHMS, TRAFFIC LIGHTS, ETC. A- USE THE JFLAP TOOL TO SOLVE THE VARIOUS EXERCISE PROBLEMS RELATED TO AUTOMATA THEORY. WHO THIS BOOK IS FOR THIS BOOK IS A MUST-READ TO EVERYONE INTERESTED IN IMPROVING THEIR CONCEPTS REGARDING DISCRETE STRUCTURE AND AUTOMATA THEORY. TABLE OF CONTENTS 1. SET THEORY 2. RELATIONS AND FUNCTIONS 3. GRAPH THEORY 4. TREES 5. ALGEBRAIC STRUCTURE 6. RECURSION AND RECURRENCE RELATIONS 7. SORTING 8. QUEUES 9. INTRODUCTION 10. FINITE AUTOMATA THEORY 11. THEORY OF MACHINES 12. REGULAR LANGUAGE 13. GRAMMAR 14. PUSHDOWN AUTOMATA 15. CELLULAR AUTOMATA 16. TURNING MACHINE 17. PROBLEMS SOLVING USING JFLAP TOOL 18. REVISION QUESTIONS ABOUT THE AUTHORS DR. UMESH SEHGAL COMPLETED HIS PH.D., M.PHIL. COMPUTER SCIENCE AND MCA. HE HELD ACADEMIC POSITIONS AT THE GNA UNIVERSITY AS AN A.P IN FCS DEPARTMENT. HE HAS ACHIEVED THE BEST EDUCATIONIST AWARD IN 2017. HE HAS ACHIEVED THE INDIRA GANDHI EDUCATION EXCELLENCE AWARD IN 2017. HE HAS ACHIEVED THE BEST RESEARCHER AWARD IN 2018-19. HE HAS PUBLISHED SEVERAL ARTICLES IN LEADING INTERNATIONAL AND NATIONAL COMPUTER SCIENCE JOURNALS AND HAS BEEN AN INVITED SPEAKER AT WIRELESS NETWORKS BASED LECTURES AND CONFERENCES IN THE MANY UNIVERSITIES AND INSTITUTES IN INDIA, MALAYSIA, CHINA, AND UAE. SUKHPREET KAUR GILL RECEIVED THE M.TECH. DEGREE IN COMPUTER SCIENCE AND ENGINEERING FROM GURU NANAK DEV ENGINEERING COLLEGE, LUDHIANA. SHE IS CURRENTLY WORKING AS ASSISTANT PROFESSOR AT GNA UNIVERSITY PHAGWARA. SHE HAS ACHIEVED THE BRIGHT EDUCATOR AWARD 2019. SHE HAS PUBLISHED SEVERAL ARTICLES IN LEADING INTERNATIONAL AND NATIONAL COMPUTER SCIENCE JOURNALS.

MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE - PETER A. FEJER 2012-12-06

MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE, VOLUME I IS THE FIRST OF TWO VOLUMES PRESENTING TOPICS FROM MATHEMATICS (MOSTLY DISCRETE MATHEMATICS) WHICH HAVE PROVEN RELEVANT AND USEFUL TO COMPUTER SCIENCE. THIS VOLUME TREATS BASIC TOPICS, MOSTLY OF A SET-THEORETICAL NATURE (SETS, FUNCTIONS AND RELATIONS, PARTIALLY ORDERED SETS, INDUCTION, ENUMERABILITY, AND DIAGONALIZATION) AND ILLUSTRATES THE USEFULNESS OF MATHEMATICAL IDEAS BY PRESENTING APPLICATIONS TO COMPUTER SCIENCE. READERS WILL FIND USEFUL APPLICATIONS IN ALGORITHMS, DATABASES, SEMANTICS OF PROGRAMMING LANGUAGES, FORMAL LANGUAGES, THEORY OF COMPUTATION, AND PROGRAM VERIFICATION. THE MATERIAL IS TREATED IN A STRAIGHTFORWARD, SYSTEMATIC, AND RIGOROUS MANNER. THE VOLUME IS ORGANIZED BY MATHEMATICAL AREA, MAKING THE MATERIAL EASILY ACCESSIBLE TO THE UPPER-UNDERGRADUATE STUDENTS IN MATHEMATICS AS WELL AS IN COMPUTER SCIENCE AND EACH CHAPTER CONTAINS A LARGE NUMBER OF EXERCISES. THE VOLUME CAN BE USED AS A TEXTBOOK, BUT IT WILL ALSO BE USEFUL TO RESEARCHERS AND PROFESSIONALS WHO WANT A THOROUGH PRESENTATION OF THE MATHEMATICAL TOOLS THEY NEED IN A SINGLE SOURCE. IN ADDITION, THE BOOK CAN BE USED EFFECTIVELY AS SUPPLEMENTARY READING MATERIAL IN COMPUTER SCIENCE COURSES, PARTICULARLY THOSE COURSES WHICH INVOLVE THE SEMANTICS OF PROGRAMMING LANGUAGES, FORMAL LANGUAGES AND AUTOMATA, AND LOGIC PROGRAMMING.

DISCRETE MATHEMATICAL STRUCTURES (CLASSIC VERSION) - BERNARD KOLMAN 2017-03-20

THIS TITLE IS PART OF THE PEARSON MODERN CLASSICS SERIES. PEARSON MODERN CLASSICS ARE ACCLAIMED TITLES AT A VALUE PRICE. PLEASE VISIT [WWW.PEARSONHIGHERED.COM/MATH-CLASSICS-SERIES](http://www.pearsonhighered.com/math-classics-series) FOR A COMPLETE LIST OF TITLES. DISCRETE MATHEMATICAL STRUCTURES, 6TH EDITION, OFFERS A CLEAR AND CONCISE PRESENTATION OF THE FUNDAMENTAL CONCEPTS OF DISCRETE MATHEMATICS. IDEAL FOR A ONE-SEMESTER INTRODUCTORY COURSE, THIS TEXT CONTAINS MORE GENUINE COMPUTER SCIENCE APPLICATIONS THAN ANY OTHER TEXT IN THE FIELD. THIS BOOK IS WRITTEN AT AN APPROPRIATE LEVEL FOR A WIDE VARIETY OF MAJORS AND NON-MAJORS, AND ASSUMES A COLLEGE ALGEBRA COURSE AS A PREREQUISITE.

DISCRETE MATHEMATICS AND APPLICATIONS - KEVIN FERLAND 2017-09-19

DISCRETE MATHEMATICS AND APPLICATIONS, SECOND EDITION IS INTENDED FOR A ONE-SEMESTER COURSE IN DISCRETE MATHEMATICS. SUCH A COURSE IS TYPICALLY TAKEN BY MATHEMATICS, MATHEMATICS EDUCATION, AND COMPUTER SCIENCE MAJORS, USUALLY IN THEIR SOPHOMORE YEAR. CALCULUS IS NOT A PREREQUISITE TO USE THIS BOOK. PART ONE FOCUSES ON HOW TO WRITE PROOFS, THEN MOVES ON TO TOPICS IN NUMBER THEORY, EMPLOYING SET THEORY IN THE PROCESS. PART TWO FOCUSES ON COMPUTATIONS, COMBINATORICS, GRAPH THEORY, TREES, AND ALGORITHMS. EMPHASIZES PROOFS, WHICH WILL APPEAL TO A SUBSET OF THIS COURSE MARKET LINKS EXAMPLES TO EXERCISE SETS OFFERS EDITION THAT HAS BEEN HEAVILY REVIEWED AND DEVELOPED FOCUSES ON GRAPH THEORY COVERS TREES AND ALGORITHMS

PROBLEMS IN SET THEORY, MATHEMATICAL LOGIC AND THE THEORY OF ALGORITHMS - Igor Lavrov 2012-12-06

PROBLEMS IN SET THEORY, MATHEMATICAL LOGIC AND THE THEORY OF ALGORITHMS BY I. LAVROV & L. MAKSIMOVA IS AN ENGLISH TRANSLATION OF THE FOURTH EDITION OF THE MOST POPULAR STUDENT PROBLEM BOOK IN MATHEMATICAL LOGIC IN RUSSIAN. IT COVERS MAJOR CLASSICAL TOPICS IN PROOF THEORY AND THE SEMANTICS OF PROPOSITIONAL AND PREDICATE LOGIC AS WELL AS SET THEORY AND COMPUTATION THEORY. EACH CHAPTER BEGINS WITH 1-2 PAGES OF TERMINOLOGY AND DEFINITIONS THAT MAKE THE BOOK SELF-CONTAINED. SOLUTIONS ARE PROVIDED. THE BOOK IS LIKELY TO BECOME AN ESSENTIAL PART OF CURRICULA IN LOGIC.

APPLIED DISCRETE STRUCTURES - Ken Levasseur 2012-02-25

APPLIED DISCRETE STRUCTURES, IS A TWO SEMESTER UNDERGRADUATE TEXT IN DISCRETE MATHEMATICS, FOCUSING ON THE STRUCTURAL PROPERTIES OF MATHEMATICAL OBJECTS. THESE INCLUDE MATRICES, FUNCTIONS, GRAPHS, TREES, LATTICES AND ALGEBRAIC STRUCTURES. THE ALGEBRAIC STRUCTURES THAT ARE DISCUSSED ARE MONOIDS, GROUPS, RINGS, FIELDS AND VECTOR SPACES. WEBSITE: HTTP://DISCRETEMATH.ORG

APPLIED DISCRETE STRUCTURES HAS BEEN APPROVED BY THE AMERICAN INSTITUTE OF MATHEMATICS AS PART OF THEIR OPEN TEXTBOOK INITIATIVE. FOR MORE INFORMATION ON OPEN TEXTBOOKS, VISIT HTTP://WWW.AIMATH.ORG/TEXTBOOKS/.

THIS VERSION WAS CREATED USING MATHBOOK XML (HTTPS://MATHBOOK.PUGETSOUND.EDU/) AL DOERR IS EMERITUS PROFESSOR OF MATHEMATICAL SCIENCES AT UMASS LOWELL. HIS INTERESTS INCLUDE ABSTRACT ALGEBRA AND DISCRETE MATHEMATICS. KEN LEVASSEUR IS A PROFESSOR OF MATHEMATICAL SCIENCES AT UMASS LOWELL. HIS INTERESTS INCLUDE DISCRETE MATHEMATICS AND ABSTRACT ALGEBRA, AND THEIR IMPLEMENTATION USING COMPUTER ALGEBRA SYSTEMS.

MATHEMATICS FOR COMPUTER SCIENCE - Eric Lehman 2017-03-08

THIS BOOK COVERS ELEMENTARY DISCRETE MATHEMATICS FOR COMPUTER SCIENCE AND ENGINEERING. IT EMPHASIZES MATHEMATICAL DEFINITIONS AND PROOFS AS WELL AS APPLICABLE METHODS. TOPICS INCLUDE FORMAL LOGIC NOTATION, PROOF METHODS; INDUCTION, WELL-ORDERING; SETS, RELATIONS; ELEMENTARY GRAPH THEORY; INTEGER CONGRUENCES; ASYMPTOTIC NOTATION AND GROWTH OF FUNCTIONS; PERMUTATIONS AND COMBINATIONS, COUNTING PRINCIPLES; DISCRETE PROBABILITY. FURTHER SELECTED TOPICS MAY ALSO BE COVERED, SUCH AS RECURSIVE DEFINITION AND STRUCTURAL INDUCTION; STATE MACHINES AND INVARIANTS; RECURRENCES; GENERATING FUNCTIONS.

DISCRETE MATHEMATICAL STRUCTURES FOR COMPUTER SCIENTISTS AND ENGINEERS - M. K. Das 2007

'DISCRETE MATHEMATICAL STRUCTURES' PROVIDES AN INTRODUCTORY MATHEMATICAL FOUNDATION FOR FURTHER ADVANCED STUDY IN DATA STRUCTURES, ALGORITHMS, COMPILERS AND THEORY OF COMPUTATION.

DISCRETE MATHEMATICAL STRUCTURES - G. Shanker Rao 2007-12-31

ABOUT THE BOOK: THIS TEXT CAN BE USED BY THE STUDENTS OF MATHEMATICS AND COMPUTER SCIENCE AS AN INTRODUCTION TO THE FUNDAMENTALS OF DISCRETE MATHEMATICS. THE BOOK IS DESIGNED IN ACCORDANCE WITH THE SYLLABI OF B.E., B. TECH., MCA AND M.Sc. (COMPUTER SCIENCE) PRESCRIBED IN MOST OF THE UNIVERSITIES OF INDIA. EACH CHAPTER IS SUPPLEMENTED WITH A NUMBER OF WORKED EXAMPLE AS WELL AS A NUMBER OF PROBLEMS TO BE SOLVED BY THE STUDENTS. THIS WOULD HELP IN A BETTER UNDERSTANDING OF THE SUBJECT. CONTENTS: MATHEMATICAL LOGIC SET THEORY RELATIONS FUNCTIONS AND RECURRENCE RELATIONS BOOLEAN ALGEBRA LOGIC GATES ELEMENTARY COMBINATORICS GRAPH THEORY ALGEBRAIC STRUCTURES FINITE STATE MACHINES

COMPUTATIONAL DISCRETE MATHEMATICS - Helmut Alt 2001-10-24

THIS BOOK IS BASED ON A GRADUATE EDUCATION PROGRAM ON COMPUTATIONAL DISCRETE MATHEMATICS RUN FOR SEVERAL YEARS IN BERLIN, GERMANY, AS A JOINT EFFORT OF THEORETICAL COMPUTER SCIENTISTS AND MATHEMATICIANS IN ORDER TO SUPPORT DOCTORAL STUDENTS AND ADVANCED ONGOING EDUCATION IN THE FIELD OF DISCRETE MATHEMATICS AND ALGORITHMICS. THE 12 SELECTED LECTURES BY LEADING RESEARCHERS PRESENTED IN THIS BOOK PROVIDE RECENT RESEARCH RESULTS AND ADVANCED TOPICS IN A COHERENT AND CONSOLIDATED WAY. AMONG THE AREAS COVERED ARE COMBINATORICS, GRAPH THEORY, CODING THEORY, DISCRETE AND COMPUTATIONAL GEOMETRY, OPTIMIZATION, AND ALGORITHMIC ASPECTS OF ALGEBRA.

DISCRETE MATHEMATICS AND GRAPH THEORY - Purna Chandra Biswal 2015-10-21

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.

DISCRETE STRUCTURES - S.B. Singh, Jai Kishore, Ekata Gupta 2016

EXTREMELY WELL ORGANIZED AND LUCIDLY WRITTEN BOOK WITH AN APPROACH TO EXPLAIN THE CONCEPTS IN COMMUNICABLE LANGUAGES. SUITABLE TEXT BOOK FOR THE STUDENTS OF BCA, B.TECH., M.C.A., M.Sc., M.TECH., ETC. EACH CHAPTER FOLLOWS OBJECTIVE TYPE PROBLEMS. AROUND 500 OBJECTIVE TYPE PROBLEMS (235) MULTIPLE CHOICE QUESTIONS, 130 FILL IN THE BLANKS TYPE, 135 TRUE/FALSE TYPE WITH THEIR ANSWERS TO HELP STUDENTS UNDERSTAND VERY CONCEPT. AROUND 800 PROBLEMS OF

VARIOUS LEVEL OF DIFFICULTY IN EXERCISES TO REVIEW THE UNDERSTANDING AND TESTING THE SKILLS OF THE STUDENTS AFTER EVERY SECTION. AROUND 140 THEOREMS TO GIVE BETTER UNDERSTANDING AND INSIGHTS OF THE CONCEPTS TOPICS ARE FOLLOWED BY FIGURES AND TABLES. IN TOTAL MORE THAN 400 FIGURES AND 140 TABLES ARE TAKEN TO BACK THE UNDERSTANDING OF TOPICS. CHAPTER INCLUDES: COMBINATORICS, SET THEORY, RELATIONS FUNCTIONS, GROUP THEORY, RINGS AND FIELDS, LOGIC, LATTICES, BOOLEAN ALGEBRA, GRAPH THEORY, AUTOMATA.

DISCRETE MATHEMATICS - Rowan Garnier 2020-10-28

IN A COMPREHENSIVE YET EASY-TO-FOLLOW MANNER, DISCRETE MATHEMATICS FOR NEW TECHNOLOGY FOLLOWS THE PROGRESSION FROM THE BASIC MATHEMATICAL CONCEPTS COVERED BY THE GCSE IN THE UK AND BY HIGH-SCHOOL ALGEBRA IN THE USA TO THE MORE SOPHISTICATED MATHEMATICAL CONCEPTS EXAMINED IN THE LATTER STAGES OF THE BOOK. THE BOOK PUNCTUATES THE RIGOROUS TREATMENT OF THEORY WITH FREQUENT USES OF PERTINENT EXAMPLES AND EXERCISES, ENABLING READERS TO ACHIEVE A FEEL FOR THE SUBJECT AT HAND. THE EXERCISE HINTS AND SOLUTIONS ARE PROVIDED AT THE END OF THE BOOK. TOPICS COVERED INCLUDE LOGIC AND THE NATURE OF MATHEMATICAL PROOF, SET THEORY, RELATIONS AND FUNCTIONS, MATRICES AND SYSTEMS OF LINEAR EQUATIONS, ALGEBRAIC STRUCTURES, BOOLEAN ALGEBRAS, AND A THOROUGH TREATISE ON GRAPH THEORY. ALTHOUGH AIMED PRIMARILY AT COMPUTER SCIENCE STUDENTS, THE STRUCTURED DEVELOPMENT OF THE MATHEMATICS ENABLES THIS TEXT TO BE USED BY UNDERGRADUATE MATHEMATICIANS, SCIENTISTS, AND OTHERS WHO REQUIRE AN UNDERSTANDING OF DISCRETE MATHEMATICS.

DISCRETE MATHEMATICS FOR COMPUTER SCIENCE - Jon Pierre Fortney 2020-12-23

DISCRETE MATHEMATICS FOR COMPUTER SCIENCE: AN EXAMPLE-BASED INTRODUCTION IS INTENDED FOR A FIRST- OR SECOND-YEAR DISCRETE MATHEMATICS COURSE FOR COMPUTER SCIENCE MAJORS. IT COVERS MANY IMPORTANT MATHEMATICAL TOPICS ESSENTIAL FOR FUTURE COMPUTER SCIENCE MAJORS, SUCH AS ALGORITHMS, NUMBER REPRESENTATIONS, LOGIC, SET THEORY, BOOLEAN ALGEBRA, FUNCTIONS, COMBINATORICS, ALGORITHMIC COMPLEXITY, GRAPHS, AND TREES. FEATURES DESIGNED TO BE ESPECIALLY USEFUL FOR COURSES AT THE COMMUNITY-COLLEGE LEVEL IDEAL AS A FIRST- OR SECOND-YEAR TEXTBOOK FOR COMPUTER SCIENCE MAJORS, OR AS A GENERAL INTRODUCTION TO DISCRETE MATHEMATICS WRITTEN TO BE ACCESSIBLE TO THOSE WITH A LIMITED MATHEMATICS BACKGROUND, AND TO AID WITH THE TRANSITION TO ABSTRACT THINKING FILLED WITH OVER 200 WORKED EXAMPLES, BOXED FOR EASY REFERENCE, AND OVER 200 PRACTICE PROBLEMS WITH ANSWERS CONTAINS APPROXIMATELY 40 SIMPLE ALGORITHMS TO AID STUDENTS IN BECOMING PROFICIENT WITH ALGORITHM CONTROL STRUCTURES AND PSEUDOCODE INCLUDES AN APPENDIX ON BASIC CIRCUIT DESIGN WHICH PROVIDES A REAL-WORLD MOTIVATIONAL EXAMPLE FOR COMPUTER SCIENCE MAJORS BY DRAWING ON MULTIPLE TOPICS COVERED IN THE BOOK TO DESIGN A CIRCUIT THAT ADDS TWO EIGHT-DIGIT BINARY NUMBERS JON PIERRE FORTNEY GRADUATED FROM THE UNIVERSITY OF PENNSYLVANIA IN 1996 WITH A BA IN MATHEMATICS AND ACTUARIAL SCIENCE AND A BSE IN CHEMICAL ENGINEERING. PRIOR TO RETURNING TO GRADUATE SCHOOL, HE WORKED AS BOTH AN ENVIRONMENTAL ENGINEER AND AS AN ACTUARIAL ANALYST. HE GRADUATED FROM ARIZONA STATE UNIVERSITY IN 2008 WITH A PHD IN MATHEMATICS, SPECIALIZING IN GEOMETRIC MECHANICS. SINCE 2012, HE HAS WORKED AT ZAYED UNIVERSITY IN DUBAI. THIS IS HIS SECOND MATHEMATICS TEXTBOOK.

DISCRETE MATHEMATICAL STRUCTURES FOR COMPUTER SCIENCE - Bernard Kolman 1987

THIS TEXT HAS BEEN DESIGNED AS A COMPLETE INTRODUCTION TO DISCRETE MATHEMATICS, PRIMARILY FOR COMPUTER SCIENCE MAJORS IN EITHER A ONE OR TWO SEMESTER COURSE. THE TOPICS ADDRESSED ARE OF GENUINE USE IN COMPUTER SCIENCE, AND ARE PRESENTED IN A LOGICALLY COHERENT FASHION. THE MATERIAL HAS BEEN ORGANIZED AND INTERRELATED TO MINIMIZE THE MASS OF DEFINITIONS AND THE ABSTRACTION OF SOME OF THE THEORY. FOR EXAMPLE, RELATIONS AND DIRECTED GRAPHS ARE TREATED AS TWO ASPECTS OF THE SAME MATHEMATICAL IDEA. WHENEVER POSSIBLE EACH NEW IDEA USES PREVIOUSLY ENCOUNTERED MATERIAL, AND THEN DEVELOPED IN SUCH A WAY THAT IT SIMPLIFIES THE MORE COMPLEX IDEAS THAT FOLLOW.

INTRODUCTION TO DISCRETE MATHEMATICS - Koo-Guan Choo 1994

DISCRETE MATHEMATICS COVERS SUCH A WIDE RANGE OF TOPICS THAT IT IS DIFFICULT TO GIVE A SIMPLE DEFINITION OF THE SUBJECT. WHEREAS CALCULUS DEALS WITH CONTINUOUS OR EVEN SMOOTH OBJECTS, DISCRETE MATHEMATICS DEALS WITH THINGS THAT COME IN "CHUNKS" THAT CAN BE COUNTED. WE WILL BE A LOT MORE PRECISE ABOUT JUST WHAT SORT OF "CHUNKS" WE ARE DEALING WITH IN THE LATER CHAPTERS. IF YOUR MATHEMATICAL BACKGROUND IS ONLY HIGH SCHOOL CALCULUS YOU COULD WELL BELIEVE THAT MATHEMATICS IS ONLY ABOUT NUMBERS FUNCTIONS AND FORMULAS FOR SOLVING PROBLEMS. IF THIS IS THE CASE, THE TOPICS IN THIS BOOK MAY BE QUITE A SURPRISE BECAUSE FOR MATHEMATICIANS, COMPUTER SCIENTISTS AND ENGINEERS, DISCRETE MATHEMATICS INCLUDES LOGIC, SET THEORY, ENUMERATION, NETWORKS, AUTOMATA, FORMAL LANGUAGES AND MANY OTHER DISCRETE STRUCTURES. THAT IS WHAT THIS BOOK IS ABOUT. ON THE OTHER HAND, IN 19 LECTURES WE CAN ONLY PRESENT AN INTRODUCTION TO THE SUBJECT AND WE MUST LEAVE OTHER IMPORTANT TOPICS SUCH AS GRAPH THEORY, ERROR-CORRECTING CODES, DISCRETE PROBABILITY THEORY AND APPLICATIONS TO THEORETICAL COMPUTER SCIENCE TO A SECOND OR THIRD COURSE. THE TOPICS COVERED ARE SET THEORY, LOGIC, BOOLEAN ALGEBRA, COUNTING, GENERATING FUNCTIONS, RECURRENCE RELATIONS, FINITE AUTOMATA AND FORMAL LANGUAGES WITH A LOT OF EMPHASIS ON COUNTING. THE SET THEORY AND LOGIC IS BASIC MATERIAL WHICH WILL BE USEFUL MANY COURSES BESIDES DISCRETE MATHEMATICS. COUNTING PROBLEMS WHICH LOOK QUITE HARD WHEN STATED IN ORDINARY ENGLISH CAN OFTEN BE SOLVED EASILY WHEN TRANSLATED INTO THE LANGUAGE OF SET THEORY. WE GIVE MANY EXAMPLES THAT REDUCE TO COUNTING THE NUMBER OF FUNCTIONS OF VARIOUS TYPES BETWEEN SETS, OR COUNTING THE NUMBER OF SUBSETS OF A SET.

A BEGINNER'S GUIDE TO DISCRETE MATHEMATICS - W.D. Wallis 2013-03-14

THIS INTRODUCTION TO DISCRETE MATHEMATICS IS AIMED AT FRESHMEN AND SOPHOMORES IN MATHEMATICS AND COMPUTER SCIENCE. IT BEGINS WITH A SURVEY OF NUMBER SYSTEMS AND ELEMENTARY SET THEORY BEFORE MOVING ON TO TREAT DATA STRUCTURES, COUNTING, PROBABILITY, RELATIONS AND FUNCTIONS, GRAPH THEORY, MATRICES, NUMBER THEORY AND CRYPTOGRAPHY. THE END OF EACH SECTION CONTAINS PROBLEM SETS WITH SELECTED SOLUTIONS, AND GOOD EXAMPLES OCCUR THROUGHOUT THE TEXT.