

FREE READING FREE DOWNLOAD CONTINUUM MECHANICS DOWNLOAD (DOWNLOAD ONLY)

THIS BOOK OFFERS A BROAD OVERVIEW OF THE POTENTIAL OF CONTINUUM MECHANICS TO DESCRIBE A WIDE RANGE OF MACROSCOPIC PHENOMENA IN REAL WORLD PROBLEMS BUILDING ON THE FUNDAMENTALS PRESENTED IN THE AUTHORS PREVIOUS BOOK CONTINUUM MECHANICS USING MATHEMATICA THIS NEW WORK EXPLORES INTERESTING MODELS OF CONTINUUM MECHANICS WITH AN EMPHASIS ON EXPLORING THE FLEXIBILITY OF THEIR APPLICATIONS IN A WIDE VARIETY OF FIELDS DIVCOMPREHENSIVE TREATMENT OFFERS 115 SOLVED PROBLEMS AND EXERCISES TO PROMOTE UNDERSTANDING OF VECTOR AND TENSOR THEORY BASIC KINEMATICS BALANCE LAWS FIELD EQUATIONS JUMP CONDITIONS AND CONSTITUTIVE EQUATIONS DIV THIS BOOK PRESENTS AN INTRODUCTION INTO THE ENTIRE SCIENCE OF CONTINUUM MECHANICS IN THREE PARTS THE PRESENTATION IS MODERN AND COMPREHENSIVE ITS INTRODUCTION INTO TENSORS IS VERY GENTLE THE BOOK CONTAINS MANY EXAMPLES AND EXERCISES AND IS INTENDED FOR SCIENTISTS PRACTITIONERS AND STUDENTS OF MECHANICS A DETAILED AND SELF CONTAINED TEXT WRITTEN FOR BEGINNERS CONTINUUM MECHANICS OFFERS CONCISE COVERAGE OF THE BASIC CONCEPTS GENERAL PRINCIPLES AND APPLICATIONS OF CONTINUUM MECHANICS WITHOUT SACRIFICING RIGOR THE CLEAR AND SIMPLE MATHEMATICAL DERIVATIONS ARE MADE ACCESSIBLE TO A LARGE NUMBER OF STUDENTS WITH LITTLE OR NO PREVIOUS BACKGROUND IN SOLID OR FLUID MECHANICS WITH THE INCLUSION OF MORE THAN 250 FULLY WORKED OUT EXAMPLES AND 500 WORKED EXERCISES THIS BOOK IS CERTAIN TO BECOME A STANDARD INTRODUCTORY TEXT FOR STUDENTS AS WELL AS AN INDISPENSABLE REFERENCE FOR PROFESSIONALS KEY FEATURES PROVIDES A CLEAR AND SELF CONTAINED TREATMENT OF VECTORS MATRICES AND TENSORS SPECIFICALLY TAILORED TO THE NEEDS OF CONTINUUM MECHANICS DEVELOPS THE CONCEPTS AND PRINCIPLES COMMON TO ALL AREAS IN SOLID AND FLUID MECHANICS WITH A COMMON NOTATION AND TERMINOLOGY COVERS THE FUNDAMENTALS OF ELASTICITY THEORY AND FLUID MECHANICS PRESENTS SEVERAL ADVANCED TOPICS INCLUDING FOURTH ORDER TENSORS DIFFERENTIATION OF TENSORS EXPONENTIAL AND LOGARITHMIC TENSORS AND THEIR APPLICATION TO NONLINEAR ELASTICITY THIS AUTHORITATIVE REFERENCE BOOK EXAMINES AND CLARIFIES PHYSICAL ASSUMPTIONS IMPLICIT IN CONTINUUM MODELLING FROM A MOLECULAR PERSPECTIVE INTRODUCTION TO CONTINUUM MECHANICS IS A RECENTLY UPDATED AND REVISED TEXT WHICH IS PERFECT FOR EITHER INTRODUCTORY COURSES IN AN UNDERGRADUATE ENGINEERING CURRICULUM OR FOR A BEGINNING GRADUATE COURSE CONTINUUM MECHANICS STUDIES THE RESPONSE OF MATERIALS TO DIFFERENT LOADING CONDITIONS THE CONCEPT OF TENSORS IS INTRODUCED THROUGH THE IDEA OF LINEAR TRANSFORMATION IN A SELF CONTAINED CHAPTER AND THE INTERRELATION OF DIRECT NOTATION INDICIAL NOTATION AND MATRIX OPERATIONS IS CLEARLY PRESENTED A WIDE RANGE OF IDEALIZED MATERIALS ARE CONSIDERED THROUGH SIMPLE STATIC AND DYNAMIC PROBLEMS AND THE BOOK CONTAINS AN ABUNDANCE OF ILLUSTRATIVE EXAMPLES OF PROBLEMS MANY WITH SOLUTIONS SERVES AS EITHER A INTRODUCTORY UNDERGRADUATE COURSE OR A BEGINNING GRADUATE COURSE TEXTBOOK INCLUDES MANY PROBLEMS WITH ILLUSTRATIONS AND ANSWERS THIS BOOK HAS BEEN DESIGNED TO INTRODUCE THE FUNDAMENTAL CONCEPTS OF CONTINUUM MECHANICS A UNIQUE FEATURE OF THE BOOK IS THAT EACH CHAPTER HAS BEEN PRESENTED WITH DIFFERENT TYPES OF SOLVED PROBLEMS THAT ARE EXPLAINED IN A SIMPLE WAY THIS BOOK ALSO CONTAINS A WIDE VARIETY OF EXERCISES WHICH ARE INTENDED TO BE AN IMPORTANT PART OF THE TEXT NOTE T F DOES NOT SELL OR DISTRIBUTE THE HARDBACK IN INDIA PAKISTAN NEPAL BHUTAN BANGLADESH AND SRI LANKA THIS TEXTBOOK ON CONTINUUM MECHANICS REFLECTS THE MODERN VIEW THAT SCIENTISTS AND ENGINEERS SHOULD BE TRAINED TO THINK AND WORK IN MULTIDISCIPLINARY ENVIRONMENTS A COURSE ON CONTINUUM MECHANICS INTRODUCES THE BASIC PRINCIPLES OF MECHANICS AND PREPARES STUDENTS FOR ADVANCED COURSES IN TRADITIONAL AND EMERGING FIELDS SUCH AS BIOMECHANICS AND NANOMECHANICS THIS TEXT INTRODUCES THE MAIN CONCEPTS OF CONTINUUM MECHANICS SIMPLY WITH RICH SUPPORTING EXAMPLES BUT DOES NOT COMPROMISE MATHEMATICALLY IN PROVIDING THE INVARIANT FORM AS WELL AS COMPONENT FORM OF THE BASIC EQUATIONS AND THEIR APPLICATIONS TO PROBLEMS IN ELASTICITY FLUID MECHANICS AND HEAT TRANSFER THE BOOK IS IDEAL FOR ADVANCED UNDERGRADUATE AND BEGINNING GRADUATE STUDENTS THE BOOK FEATURES DERIVATIONS OF THE BASIC EQUATIONS OF MECHANICS IN INVARIANT VECTOR AND TENSOR FORM AND SPECIALIZATIONS OF THE GOVERNING EQUATIONS TO VARIOUS COORDINATE SYSTEMS NUMEROUS ILLUSTRATIVE EXAMPLES CHAPTER END SUMMARIES AND EXERCISE PROBLEMS TO TEST AND EXTEND THE UNDERSTANDING OF CONCEPTS PRESENTED UNDERGRADUATE TEXT OFFERS AN ANALYSIS OF DEFORMATION AND STRESS COVERS LAWS OF CONSERVATION OF MASS MOMENTUM AND ENERGY AND SURVEYS THE FORMULATION OF MECHANICAL CONSTITUTIVE EQUATIONS 1992 EDITION GENERAL CONTINUUM MECHANICS PROVIDES AN INTEGRATED AND UNIFIED STUDY OF CONTINUUM MECHANICS THIS PUBLICATION IS AIMED AT STUDENTS TEACHERS AND RESEARCHERS OF CONTINUUM MECHANICS AND FOCUSED EXTENSIVELY ON STATING AND DEVELOPING INITIAL BOUNDARY VALUE EQUATIONS USED TO SOLVE PHYSICAL PROBLEMS WITH RESPECT TO NOTATION THE TENSORIAL INDICIAL AND VOIGT NOTATIONS HAVE BEEN USED INDISCRIMINATELY THE BOOK IS DIVIDED INTO TWELVE CHAPTERS WITH THE FOLLOWING TOPICS TENSORS CONTINUUM KINEMATICS STRESS THE OBJECTIVITY OF TENSORS THE FUNDAMENTAL EQUATIONS OF CONTINUUM MECHANICS AN INTRODUCTION TO CONSTITUTIVE EQUATIONS LINEAR ELASTICITY HYPERELASTICITY PLASTICITY SMALL AND LARGE DEFORMATIONS THERMOELASTICITY SMALL AND LARGE DEFORMATIONS DAMAGE MECHANICS SMALL AND LARGE DEFORMATIONS AND AN INTRODUCTION TO FLUIDS MOREOVER THE TEXT IS SUPPLEMENTED WITH OVER 280 FIGURES OVER 100 SOLVED PROBLEMS AND 130 REFERENCES THIS SENIOR UNDERGRADUATE AND FIRST YEAR GRADUATE TEXT PROVIDES A CONCISE TREATMENT OF THE SUBJECT OF CONTINUUM MECHANICS AND ELASTICITY THIS CONCISE TEXTBOOK DEVELOPS STEP BY STEP THE FUNDAMENTAL PRINCIPLES OF CONTINUUM MECHANICS EMPHASIS IS ON MATHEMATICAL CLARITY AND AN EXTENDED APPENDIX PROVIDES THE REQUIRED BACKGROUND KNOWLEDGE IN LINEAR ALGEBRA AND TENSOR CALCULUS AFTER INTRODUCING THE BASIC NOTIONS ABOUT GENERAL KINEMATICS BALANCE EQUATIONS MATERIAL OBJECTIVITY AND CONSTITUTIVE FUNCTIONS THE BOOK TURNS TO THE PRESENTATION OF RATIONAL THERMODYNAMICS BY STRESSING THE ROLE OF LAGRANGE MULTIPLIERS IN DERIVING CONSTITUTIVE FUNCTIONS FROM THE UNDERLYING ENTROPY PRINCIPLE A BRIEF LECTURE ON EXTENDED THERMODYNAMICS CLOSES THE BOOK MANY EXAMPLES AND EXERCISES ROUND OFF THE MATERIAL PRESENTED IN THE CHAPTERS THE BOOK ADDRESSES PRIMARILY ADVANCED UNDERGRADUATE STUDENTS IN THEORETICAL PHYSICS APPLIED MATHEMATICS AND MATERIALS SCIENCES TREATS SUBJECTS DIRECTLY RELATED TO NONLINEAR MATERIALS MODELING FOR GRADUATE STUDENTS AND RESEARCHERS IN PHYSICS MATERIALS SCIENCE CHEMISTRY AND ENGINEERING THIS BEST SELLING TEXTBOOK PRESENTS THE CONCEPTS OF CONTINUUM MECHANICS AND THE SECOND EDITION INCLUDES ADDITIONAL EXPLANATIONS EXAMPLES AND EXERCISES MANY TEXTBOOKS ON CONTINUUM MECHANICS PLUNGE STUDENTS IN AT THE DEEP END OF THREE DIMENSIONAL ANALYSIS AND APPLICATIONS HOWEVER A STRIKING NUMBER OF COMMONPLACE MODELS OF OUR PHYSICAL ENVIRONMENT ARE BASED ENTIRELY WITHIN THE DYNAMICS OF A ONE DIMENSIONAL CONTINUUM THIS INTRODUCTORY TEXT THEREFORE APPROACHES THE SUBJECT ENTIRELY WITHIN SUCH A ONE DIMENSIONAL FRAMEWORK THE PRINCIPLES OF THE MATHEMATICAL MODELING OF ONE DIMENSIONAL MEDIA CONSTITUTE THE BOOK S BACKBONE THESE CONCEPTS ARE ELUCIDATED WITH A DIVERSE SELECTION OF APPLICATIONS RANGING FROM TIDAL DYNAMICS AND DISPERSION IN CHANNELS TO BEAM BENDING ALGAL BLOOMS BLOOD FLOW AND THE GREENHOUSE EFFECT THE BOOK IS IDEALLY SUITED TO ELEMENTARY UNDERGRADUATE COURSES AS IT MAKES NO USE OF MULTIVARIABLE CALCULUS A NUMBER OF GRADED PROBLEMS ARE INCLUDED AT THE END OF EACH SECTION A FIRST COURSE IN RATIONAL CONTINUUM MECHANICS VOLUME 1 GENERAL CONCEPTS DESCRIBES GENERAL CONCEPTS IN RATIONAL CONTINUUM MECHANICS AND COVERS TOPICS RANGING FROM BODIES AND FORCES TO MOTIONS AND ENERGIES KINEMATICS AND THE STRESS TENSOR CONSTITUTIVE RELATIONS ARE ALSO DISCUSSED AND SOME DEFINITIONS AND THEOREMS OF ALGEBRA GEOMETRY AND CALCULUS ARE INCLUDED EXERCISES AND THEIR SOLUTIONS ARE GIVEN AS WELL COMPRISED OF FOUR CHAPTERS THIS VOLUME BEGINS WITH AN INTRODUCTION TO RATIONAL MECHANICS BY FOCUSING ON THE MATHEMATICAL CONCEPTS OF BODIES FORCES MOTIONS AND ENERGIES SYSTEMS THAT PROVIDE POSSIBLE UNIVERSES FOR MECHANICS ARE DESCRIBED THE NEXT CHAPTER EXPLORES KINEMATICS WITH EMPHASIS ON BODIES PLACEMENTS AND MOTIONS AS WELL AS OTHER RELEVANT CONCEPTS LIKE LOCAL DEFORMATION AND HOMOGENEOUS TRANSPLACEMENT THE BOOK ALSO CONSIDERS THE STRESS TENSOR AND CAUCHY S FUNDAMENTAL THEOREM BEFORE CONCLUDING WITH A DISCUSSION ON CONSTITUTIVE RELATIONS

THIS MONOGRAPH IS DESIGNED FOR STUDENTS TAKING A COURSE IN MATHEMATICS OR PHYSICS THIS VOLUME IS INTENDED TO HELP GRADUATE LEVEL STUDENTS OF CONTINUUM MECHANICS BECOME MORE PROFICIENT IN ITS APPLICATIONS THROUGH THE SOLUTION OF ANALYTICAL PROBLEMS PUBLISHED AS TWO SEPARATE BOOKS PART I ON THEORY AND PROBLEMS WITH PART II PROVIDING SOLUTIONS TO THE PROBLEMS PROFESSORS MAY ALSO FIND IT QUITE USEFUL IN PREPARING THEIR LECTURES AND EXAMINATIONS PART I INCLUDES A BRIEF THEORETICAL TREATMENT FOR EACH OF THE MAJOR AREAS OF CONTINUUM MECHANICS FLUID MECHANICS THERMODYNAMICS ELASTIC AND INELASTIC SOLIDS ELECTRICITY DIMENSIONAL ANALYSIS AND SO ON AS WELL AS THE REFERENCES FOR FURTHER READING THE BULK OF PART II CONSISTS OF ABOUT 1000 SOLVED PROBLEMS THE BOOK INCLUDES BIBLIOGRAPHICAL REFERENCES AND INDEX OUTSTANDING APPROACH TO CONTINUUM MECHANICS ITS HIGH MATHEMATICAL LEVEL OF TEACHING TOGETHER WITH ABSTRACTS SUMMARIES BOXES OF ESSENTIAL FORMULAE AND NUMEROUS EXERCISES WITH SOLUTIONS MAKES THIS HANDBOOK ONE OF MOST COMPLETE BOOKS IN THE AREA STUDENTS LECTURERS AND PRACTITIONERS WILL FIND THIS HANDBOOK A RICH SOURCE FOR THEIR STUDIES OR DAILY WORK THIS BOOK PROVIDES A BRIEF INTRODUCTION TO RATIONAL CONTINUUM MECHANICS IN A FORM SUITABLE FOR STUDENTS OF ENGINEERING MATHEMATICS AND SCIENCE THE PRESENTATION IS TIGHTLY FOCUSED ON THE SIMPLEST CASE OF THE CLASSICAL MECHANICS OF NONPOLAR MATERIALS LEAVING ASIDE THE EFFECTS OF INTERNAL STRUCTURE TEMPERATURE AND ELECTROMAGNETISM AND EXCLUDING OTHER MATHEMATICAL MODELS SUCH AS STATISTICAL MECHANICS RELATIVISTIC MECHANICS AND QUANTUM MECHANICS WITHIN THE LIMITATIONS OF THE SIMPLEST MECHANICAL THEORY THE AUTHOR HAD PROVIDED A TEXT THAT IS LARGELY SELF CONTAINED THOUGH THE BOOK IS PRIMARILY AN INTRODUCTION TO CONTINUUM MECHANICS THE LURE AND ATTRACTION INHERENT IN THE SUBJECT MAY ALSO RECOMMEND THE BOOK AS A VEHICLE BY WHICH THE STUDENT CAN OBTAIN A BROADER APPRECIATION OF CERTAIN IMPORTANT METHODS AND RESULTS FROM CLASSICAL AND MODERN ANALYSIS AS MOST MODERN TECHNOLOGIES ARE NO LONGER DISCIPLINE SPECIFIC BUT INVOLVE MULTIDISCIPLINARY APPROACHES UNDERGRADUATE ENGINEERING STUDENTS SHOULD BE INTRODUCED TO THE PRINCIPLES OF MECHANICS SO THAT THEY HAVE A STRONG BACKGROUND IN THE BASIC PRINCIPLES COMMON TO ALL DISCIPLINES AND ARE ABLE TO WORK AT THE INTERFACE OF SCIENCE AND ENGINEERING DISCIPLINES THIS TEXTBOOK IS DESIGNED FOR A FIRST COURSE ON PRINCIPLES OF MECHANICS AND PROVIDES AN INTRODUCTION TO THE BASIC CONCEPTS OF STRESS AND STRAIN AND CONSERVATION PRINCIPLES IT PREPARES ENGINEER SCIENTISTS FOR ADVANCED COURSES IN TRADITIONAL AS WELL AS EMERGING FIELDS SUCH AS BIOTECHNOLOGY NANOTECHNOLOGY ENERGY SYSTEMS AND COMPUTATIONAL MECHANICS THIS SIMPLE BOOK PRESENTS THE SUBJECTS OF MECHANICS OF MATERIALS FLUID MECHANICS AND HEAT TRANSFER IN A UNIFIED FORM USING THE CONSERVATION PRINCIPLES OF MECHANICS THIS TEXTBOOK TREATS SOLIDS AND FLUIDS IN A BALANCED MANNER USING THERMODYNAMIC RESTRICTIONS ON THE RELATION BETWEEN APPLIED FORCES AND MATERIAL RESPONSES THIS UNIFIED APPROACH CAN BE APPRECIATED BY ENGINEERS PHYSICISTS AND APPLIED MATHEMATICIANS WITH SOME BACKGROUND IN ENGINEERING MECHANICS IT HAS MANY EXAMPLES AND ABOUT 150 EXERCISES FOR STUDENTS TO PRACTICE THE HIGHER MATHEMATICS NEEDED FOR A COMPLETE UNDERSTANDING IS PROVIDED IN THE EARLY CHAPTERS THIS SUBJECT IS ESSENTIAL FOR ENGINEERS INVOLVED IN EXPERIMENTAL OR NUMERICAL MODELING OF MATERIAL BEHAVIOR THE PURPOSES OF THE TEXT ARE TO INTRODUCE THE ENGINEER TO THE VERY IMPORTANT DISCIPLINE IN APPLIED MATHEMATICS TENSOR METHODS AS WELL AS TO SHOW THE FUNDAMENTAL UNITY OF THE DIFFERENT FIELDS IN CONTINUUM MECHANICS WITH THE UNIFYING MATERIAL FORMED BY THE MATRIX TENSOR THEORY AND TO PRESENT TO THE ENGINEER MODERN ENGINEERING PROBLEMS REQUEST INSPECTION COPY

CONTINUUM MECHANICS

2010-07-23

THIS BOOK OFFERS A BROAD OVERVIEW OF THE POTENTIAL OF CONTINUUM MECHANICS TO DESCRIBE A WIDE RANGE OF MACROSCOPIC PHENOMENA IN REAL WORLD PROBLEMS BUILDING ON THE FUNDAMENTALS PRESENTED IN THE AUTHORS PREVIOUS BOOK CONTINUUM MECHANICS USING MATHEMATICA THIS NEW WORK EXPLORES INTERESTING MODELS OF CONTINUUM MECHANICS WITH AN EMPHASIS ON EXPLORING THE FLEXIBILITY OF THEIR APPLICATIONS IN A WIDE VARIETY OF FIELDS

CONTINUUM MECHANICS

2010

DIVCOMPREHENSIVE TREATMENT OFFERS 115 SOLVED PROBLEMS AND EXERCISES TO PROMOTE UNDERSTANDING OF VECTOR AND TENSOR THEORY BASIC KINEMATICS BALANCE LAWS FIELD EQUATIONS JUMP CONDITIONS AND CONSTITUTIVE EQUATIONS DIV

CONTINUUM MECHANICS

2012-08-08

THIS BOOK PRESENTS AN INTRODUCTION INTO THE ENTIRE SCIENCE OF CONTINUUM MECHANICS IN THREE PARTS THE PRESENTATION IS MODERN AND COMPREHENSIVE ITS INTRODUCTION INTO TENSORS IS VERY GENTLE THE BOOK CONTAINS MANY EXAMPLES AND EXERCISES AND IS INTENDED FOR SCIENTISTS PRACTITIONERS AND STUDENTS OF MECHANICS

CONTINUUM MECHANICS

2008-01-10

A DETAILED AND SELF CONTAINED TEXT WRITTEN FOR BEGINNERS CONTINUUM MECHANICS OFFERS CONCISE COVERAGE OF THE BASIC CONCEPTS GENERAL PRINCIPLES AND APPLICATIONS OF CONTINUUM MECHANICS WITHOUT SACRIFICING RIGOR THE CLEAR AND SIMPLE MATHEMATICAL DERIVATIONS ARE MADE ACCESSIBLE TO A LARGE NUMBER OF STUDENTS WITH LITTLE OR NO PREVIOUS BACKGROUND IN SOLID OR FLUID MECHANICS WITH THE INCLUSION OF MORE THAN 250 FULLY WORKED OUT EXAMPLES AND 500 WORKED EXERCISES THIS BOOK IS CERTAIN TO BECOME A STANDARD INTRODUCTORY TEXT FOR STUDENTS AS WELL AS AN INDISPENSABLE REFERENCE FOR PROFESSIONALS KEY FEATURES PROVIDES A CLEAR AND SELF CONTAINED TREATMENT OF VECTORS MATRICES AND TENSORS SPECIFICALLY TAILORED TO THE NEEDS OF CONTINUUM MECHANICS DEVELOPS THE CONCEPTS AND PRINCIPLES COMMON TO ALL AREAS IN SOLID AND FLUID MECHANICS WITH A COMMON NOTATION AND TERMINOLOGY COVERS THE FUNDAMENTALS OF ELASTICITY THEORY AND FLUID MECHANICS

CONTINUUM MECHANICS

2014-05-19

PRESENTS SEVERAL ADVANCED TOPICS INCLUDING FOURTH ORDER TENSORS DIFFERENTIATION OF TENSORS EXPONENTIAL AND LOGARITHMIC TENSORS AND THEIR APPLICATION TO NONLINEAR ELASTICITY

CONTINUUM MECHANICS

2015-06-25

THIS AUTHORITATIVE REFERENCE BOOK EXAMINES AND CLARIFIES PHYSICAL ASSUMPTIONS IMPLICIT IN CONTINUUM MODELLING FROM A MOLECULAR PERSPECTIVE

FOUNDATIONS AND APPLICATIONS OF MECHANICS: CONTINUUM MECHANICS

2002

INTRODUCTION TO CONTINUUM MECHANICS IS A RECENTLY UPDATED AND REVISED TEXT WHICH IS PERFECT FOR EITHER INTRODUCTORY COURSES IN AN UNDERGRADUATE ENGINEERING CURRICULUM OR FOR A BEGINNING GRADUATE COURSE. CONTINUUM MECHANICS STUDIES THE RESPONSE OF MATERIALS TO DIFFERENT LOADING CONDITIONS. THE CONCEPT OF TENSORS IS INTRODUCED THROUGH THE IDEA OF LINEAR TRANSFORMATION IN A SELF-CONTAINED CHAPTER. AND THE INTERRELATION OF DIRECT NOTATION, INDICIAL NOTATION, AND MATRIX OPERATIONS IS CLEARLY PRESENTED. A WIDE RANGE OF IDEALIZED MATERIALS ARE CONSIDERED THROUGH SIMPLE STATIC AND DYNAMIC PROBLEMS. AND THE BOOK CONTAINS AN ABUNDANCE OF ILLUSTRATIVE EXAMPLES OF PROBLEMS. MANY WITH SOLUTIONS. SERVES AS EITHER A INTRODUCTORY UNDERGRADUATE COURSE OR A BEGINNING GRADUATE COURSE. TEXTBOOK INCLUDES MANY PROBLEMS WITH ILLUSTRATIONS AND ANSWERS.

CONTINUUM MECHANICS

1988

THIS BOOK HAS BEEN DESIGNED TO INTRODUCE THE FUNDAMENTAL CONCEPTS OF CONTINUUM MECHANICS. A UNIQUE FEATURE OF THE BOOK IS THAT EACH CHAPTER HAS BEEN PRESENTED WITH DIFFERENT TYPES OF SOLVED PROBLEMS THAT ARE EXPLAINED IN A SIMPLE WAY. THIS BOOK ALSO CONTAINS A WIDE VARIETY OF EXERCISES WHICH ARE INTENDED TO BE AN IMPORTANT PART OF THE TEXT. NOTE THAT IT DOES NOT SELL OR DISTRIBUTE THE HARDBACK IN INDIA, PAKISTAN, NEPAL, BHUTAN, BANGLADESH, AND SRI LANKA.

PHYSICAL FOUNDATIONS OF CONTINUUM MECHANICS

2012-10-22

THIS TEXTBOOK ON CONTINUUM MECHANICS REFLECTS THE MODERN VIEW THAT SCIENTISTS AND ENGINEERS SHOULD BE TRAINED TO THINK AND WORK IN MULTIDISCIPLINARY ENVIRONMENTS. A COURSE ON CONTINUUM MECHANICS INTRODUCES THE BASIC PRINCIPLES OF MECHANICS AND PREPARES STUDENTS FOR ADVANCED COURSES IN TRADITIONAL AND EMERGING FIELDS SUCH AS BIOMECHANICS AND NANOMECHANICS. THIS TEXT INTRODUCES THE MAIN CONCEPTS OF CONTINUUM MECHANICS SIMPLY WITH RICH SUPPORTING EXAMPLES BUT DOES NOT COMPROMISE MATHEMATICALLY IN PROVIDING THE INVARIANT FORM AS WELL AS COMPONENT FORM OF THE BASIC EQUATIONS AND THEIR APPLICATIONS TO PROBLEMS IN ELASTICITY, FLUID MECHANICS, AND HEAT TRANSFER. THE BOOK IS IDEAL FOR ADVANCED UNDERGRADUATE AND BEGINNING GRADUATE STUDENTS. THE BOOK FEATURES DERIVATIONS OF THE BASIC EQUATIONS OF MECHANICS IN INVARIANT VECTOR AND TENSOR FORM AND SPECIALIZATIONS OF THE GOVERNING EQUATIONS TO VARIOUS COORDINATE SYSTEMS. NUMEROUS ILLUSTRATIVE EXAMPLES, CHAPTER-END SUMMARIES, AND EXERCISE PROBLEMS TO TEST AND EXTEND THE UNDERSTANDING OF CONCEPTS PRESENTED.

CONTINUUM MECHANICS

1970

UNDERGRADUATE TEXT OFFERS AN ANALYSIS OF DEFORMATION AND STRESS. COVERS LAWS OF CONSERVATION OF MASS, MOMENTUM, AND ENERGY, AND SURVEYS THE FORMULATION OF MECHANICAL CONSTITUTIVE EQUATIONS. 1992 EDITION.

INTRODUCTION TO CONTINUUM MECHANICS

2014-06-28

GENERAL CONTINUUM MECHANICS PROVIDES AN INTEGRATED AND UNIFIED STUDY OF CONTINUUM MECHANICS.

CONTINUUM MECHANICS

2022-06-02

THIS PUBLICATION IS AIMED AT STUDENTS, TEACHERS, AND RESEARCHERS OF CONTINUUM MECHANICS AND FOCUSED EXTENSIVELY ON STATING AND DEVELOPING INITIAL BOUNDARY VALUE EQUATIONS USED TO SOLVE PHYSICAL PROBLEMS. WITH RESPECT TO NOTATION, THE TENSORIAL, INDICIAL, AND VOIGT NOTATIONS HAVE BEEN USED INDISCRIMINATELY. THE BOOK IS DIVIDED INTO TWELVE CHAPTERS WITH THE FOLLOWING TOPICS:

TENSORS CONTINUUM KINEMATICS STRESS THE OBJECTIVITY OF TENSORS THE FUNDAMENTAL EQUATIONS OF CONTINUUM MECHANICS AN INTRODUCTION TO CONSTITUTIVE EQUATIONS LINEAR ELASTICITY HYPERELASTICITY PLASTICITY SMALL AND LARGE DEFORMATIONS THERMOELASTICITY SMALL AND LARGE DEFORMATIONS DAMAGE MECHANICS SMALL AND LARGE DEFORMATIONS AND AN INTRODUCTION TO FLUIDS MOREOVER THE TEXT IS SUPPLEMENTED WITH OVER 280 FIGURES OVER 100 SOLVED PROBLEMS AND 130 REFERENCES

AN INTRODUCTION TO CONTINUUM MECHANICS

2007-10-29

THIS SENIOR UNDERGRADUATE AND FIRST YEAR GRADUATE TEXT PROVIDES A CONCISE TREATMENT OF THE SUBJECT OF CONTINUUM MECHANICS AND ELASTICITY

CONTINUUM MECHANICS

2012-06-08

THIS CONCISE TEXTBOOK DEVELOPS STEP BY STEP THE FUNDAMENTAL PRINCIPLES OF CONTINUUM MECHANICS EMPHASIS IS ON MATHEMATICAL CLARITY AND AN EXTENDED APPENDIX PROVIDES THE REQUIRED BACKGROUND KNOWLEDGE IN LINEAR ALGEBRA AND TENSOR CALCULUS AFTER INTRODUCING THE BASIC NOTIONS ABOUT GENERAL KINEMATICS BALANCE EQUATIONS MATERIAL OBJECTIVITY AND CONSTITUTIVE FUNCTIONS THE BOOK TURNS TO THE PRESENTATION OF RATIONAL THERMODYNAMICS BY STRESSING THE ROLE OF LAGRANGE MULTIPLIERS IN DERIVING CONSTITUTIVE FUNCTIONS FROM THE UNDERLYING ENTROPY PRINCIPLE A BRIEF LECTURE ON EXTENDED THERMODYNAMICS CLOSES THE BOOK MANY EXAMPLES AND EXERCISES ROUND OFF THE MATERIAL PRESENTED IN THE CHAPTERS THE BOOK ADDRESSES PRIMARILY ADVANCED UNDERGRADUATE STUDENTS IN THEORETICAL PHYSICS APPLIED MATHEMATICS AND MATERIALS SCIENCES

CONTINUUM MECHANICS VIA PROBLEMS AND EXERCISES: THEORY AND PROBLEMS

1996

TREATS SUBJECTS DIRECTLY RELATED TO NONLINEAR MATERIALS MODELING FOR GRADUATE STUDENTS AND RESEARCHERS IN PHYSICS MATERIALS SCIENCE CHEMISTRY AND ENGINEERING

GENERAL CONTINUUM MECHANICS

2007-01-29

THIS BEST SELLING TEXTBOOK PRESENTS THE CONCEPTS OF CONTINUUM MECHANICS AND THE SECOND EDITION INCLUDES ADDITIONAL EXPLANATIONS EXAMPLES AND EXERCISES

NOTES ON CONTINUUM MECHANICS

2013-06-13

MANY TEXTBOOKS ON CONTINUUM MECHANICS PLUNGE STUDENTS IN AT THE DEEP END OF THREE DIMENSIONAL ANALYSIS AND APPLICATIONS HOWEVER A STRIKING NUMBER OF COMMONPLACE MODELS OF OUR PHYSICAL ENVIRONMENT ARE BASED ENTIRELY WITHIN THE DYNAMICS OF A ONE DIMENSIONAL CONTINUUM THIS INTRODUCTORY TEXT THEREFORE APPROACHES THE SUBJECT ENTIRELY WITHIN SUCH A ONE DIMENSIONAL FRAMEWORK THE PRINCIPLES OF THE MATHEMATICAL MODELING OF ONE DIMENSIONAL MEDIA CONSTITUTE THE BOOK S BACKBONE THESE CONCEPTS ARE ELUCIDATED WITH A DIVERSE SELECTION OF APPLICATIONS RANGING FROM TIDAL DYNAMICS AND DISPERSION IN CHANNELS TO BEAM BENDING ALGAL BLOOMS BLOOD FLOW AND THE GREENHOUSE EFFECT THE BOOK IS IDEALLY SUITED TO ELEMENTARY UNDERGRADUATE COURSES AS IT MAKES NO USE OF MULTIVARIABLE CALCULUS A NUMBER OF GRADED PROBLEMS ARE INCLUDED AT THE END OF EACH SECTION

AN INTRODUCTION TO CONTINUUM MECHANICS

2005

A FIRST COURSE IN RATIONAL CONTINUUM MECHANICS VOLUME 1 GENERAL CONCEPTS DESCRIBES GENERAL CONCEPTS IN RATIONAL CONTINUUM MECHANICS AND COVERS TOPICS RANGING FROM BODIES AND FORCES TO MOTIONS AND ENERGIES KINEMATICS AND THE STRESS TENSOR CONSTITUTIVE RELATIONS ARE ALSO DISCUSSED AND SOME DEFINITIONS AND THEOREMS OF ALGEBRA GEOMETRY AND CALCULUS ARE INCLUDED EXERCISES

AND THEIR SOLUTIONS ARE GIVEN AS WELL COMPRISED OF FOUR CHAPTERS THIS VOLUME BEGINS WITH AN INTRODUCTION TO RATIONAL MECHANICS BY FOCUSING ON THE MATHEMATICAL CONCEPTS OF BODIES FORCES MOTIONS AND ENERGIES SYSTEMS THAT PROVIDE POSSIBLE UNIVERSES FOR MECHANICS ARE DESCRIBED THE NEXT CHAPTER EXPLORES KINEMATICS WITH EMPHASIS ON BODIES PLACEMENTS AND MOTIONS AS WELL AS OTHER RELEVANT CONCEPTS LIKE LOCAL DEFORMATION AND HOMOGENEOUS TRANSPLACEMENT THE BOOK ALSO CONSIDERS THE STRESS TENSOR AND CAUCHY'S FUNDAMENTAL THEOREM BEFORE CONCLUDING WITH A DISCUSSION ON CONSTITUTIVE RELATIONS THIS MONOGRAPH IS DESIGNED FOR STUDENTS TAKING A COURSE IN MATHEMATICS OR PHYSICS

PRINCIPLES OF CONTINUUM MECHANICS

2017-11-16

THIS VOLUME IS INTENDED TO HELP GRADUATE LEVEL STUDENTS OF CONTINUUM MECHANICS BECOME MORE PROFICIENT IN ITS APPLICATIONS THROUGH THE SOLUTION OF ANALYTICAL PROBLEMS PUBLISHED AS TWO SEPARATE BOOKS PART I ON THEORY AND PROBLEMS WITH PART II PROVIDING SOLUTIONS TO THE PROBLEMS PROFESSORS MAY ALSO FIND IT QUITE USEFUL IN PREPARING THEIR LECTURES AND EXAMINATIONS PART I INCLUDES A BRIEF THEORETICAL TREATMENT FOR EACH OF THE MAJOR AREAS OF CONTINUUM MECHANICS FLUID MECHANICS THERMODYNAMICS ELASTIC AND INELASTIC SOLIDS ELECTRICITY DIMENSIONAL ANALYSIS AND SO ON AS WELL AS THE REFERENCES FOR FURTHER READING THE BULK OF PART II CONSISTS OF ABOUT 1000 SOLVED PROBLEMS THE BOOK INCLUDES BIBLIOGRAPHICAL REFERENCES AND INDEX

CONTINUUM MECHANICS

2002-05-28

OUTSTANDING APPROACH TO CONTINUUM MECHANICS ITS HIGH MATHEMATICAL LEVEL OF TEACHING TOGETHER WITH ABSTRACTS SUMMARIES BOXES OF ESSENTIAL FORMULAE AND NUMEROUS EXERCISES WITH SOLUTIONS MAKES THIS HANDBOOK ONE OF MOST COMPLETE BOOKS IN THE AREA STUDENTS LECTURERS AND PRACTITIONERS WILL FIND THIS HANDBOOK A RICH SOURCE FOR THEIR STUDIES OR DAILY WORK

CONTINUUM MECHANICS

1992

THIS BOOK PROVIDES A BRIEF INTRODUCTION TO RATIONAL CONTINUUM MECHANICS IN A FORM SUITABLE FOR STUDENTS OF ENGINEERING MATHEMATICS AND SCIENCE THE PRESENTATION IS TIGHTLY FOCUSED ON THE SIMPLEST CASE OF THE CLASSICAL MECHANICS OF NONPOLAR MATERIALS LEAVING ASIDE THE EFFECTS OF INTERNAL STRUCTURE TEMPERATURE AND ELECTROMAGNETISM AND EXCLUDING OTHER MATHEMATICAL MODELS SUCH AS STATISTICAL MECHANICS RELATIVISTIC MECHANICS AND QUANTUM MECHANICS WITHIN THE LIMITATIONS OF THE SIMPLEST MECHANICAL THEORY THE AUTHOR HAS PROVIDED A TEXT THAT IS LARGELY SELF CONTAINED THOUGH THE BOOK IS PRIMARILY AN INTRODUCTION TO CONTINUUM MECHANICS THE LURE AND ATTRACTION INHERENT IN THE SUBJECT MAY ALSO RECOMMEND THE BOOK AS A VEHICLE BY WHICH THE STUDENT CAN OBTAIN A BROADER APPRECIATION OF CERTAIN IMPORTANT METHODS AND RESULTS FROM CLASSICAL AND MODERN ANALYSIS

CONTINUUM MECHANICS AND THERMODYNAMICS

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AS MOST MODERN TECHNOLOGIES ARE NO LONGER DISCIPLINE SPECIFIC BUT INVOLVE MULTIDISCIPLINARY APPROACHES UNDERGRADUATE ENGINEERING STUDENTS SHOULD BE INTRODUCED TO THE PRINCIPLES OF MECHANICS SO THAT THEY HAVE A STRONG BACKGROUND IN THE BASIC PRINCIPLES COMMON TO ALL DISCIPLINES AND ARE ABLE TO WORK AT THE INTERFACE OF SCIENCE AND ENGINEERING DISCIPLINES THIS TEXTBOOK IS DESIGNED FOR A FIRST COURSE ON PRINCIPLES OF MECHANICS AND PROVIDES AN INTRODUCTION TO THE BASIC CONCEPTS OF STRESS AND STRAIN AND CONSERVATION PRINCIPLES IT PREPARES ENGINEER SCIENTISTS FOR ADVANCED COURSES IN TRADITIONAL AS WELL AS EMERGING FIELDS SUCH AS BIOTECHNOLOGY NANOTECHNOLOGY ENERGY SYSTEMS AND COMPUTATIONAL MECHANICS THIS SIMPLE BOOK PRESENTS THE SUBJECTS OF MECHANICS OF MATERIALS FLUID MECHANICS AND HEAT TRANSFER IN A UNIFIED FORM USING THE CONSERVATION PRINCIPLES OF MECHANICS

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THIS TEXTBOOK TREATS SOLIDS AND FLUIDS IN A BALANCED MANNER USING THERMODYNAMIC RESTRICTIONS ON THE RELATION BETWEEN APPLIED FORCES AND MATERIAL RESPONSES THIS UNIFIED APPROACH CAN BE APPRECIATED BY ENGINEERS PHYSICISTS AND APPLIED MATHEMATICIANS WITH SOME BACKGROUND IN ENGINEERING MECHANICS IT HAS MANY EXAMPLES AND ABOUT 150 EXERCISES FOR STUDENTS TO PRACTICE THE HIGHER MATHEMATICS NEEDED FOR A COMPLETE UNDERSTANDING IS PROVIDED IN THE EARLY CHAPTERS THIS SUBJECT IS ESSENTIAL FOR ENGINEERS INVOLVED IN EXPERIMENTAL OR NUMERICAL MODELING OF MATERIAL BEHAVIOR

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THE PURPOSES OF THE TEXT ARE TO INTRODUCE THE ENGINEER TO THE VERY IMPORTANT DISCIPLINE IN APPLIED MATHEMATICS TENSOR METHODS AS WELL AS TO SHOW THE FUNDAMENTAL UNITY OF THE DIFFERENT FIELDS IN CONTINUUM MECHANICS WITH THE UNIFYING MATERIAL FORMED BY THE MATRIX TENSOR THEORY AND TO PRESENT TO THE ENGINEER MODERN ENGINEERING PROBLEMS REQUEST INSPECTION COPY

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