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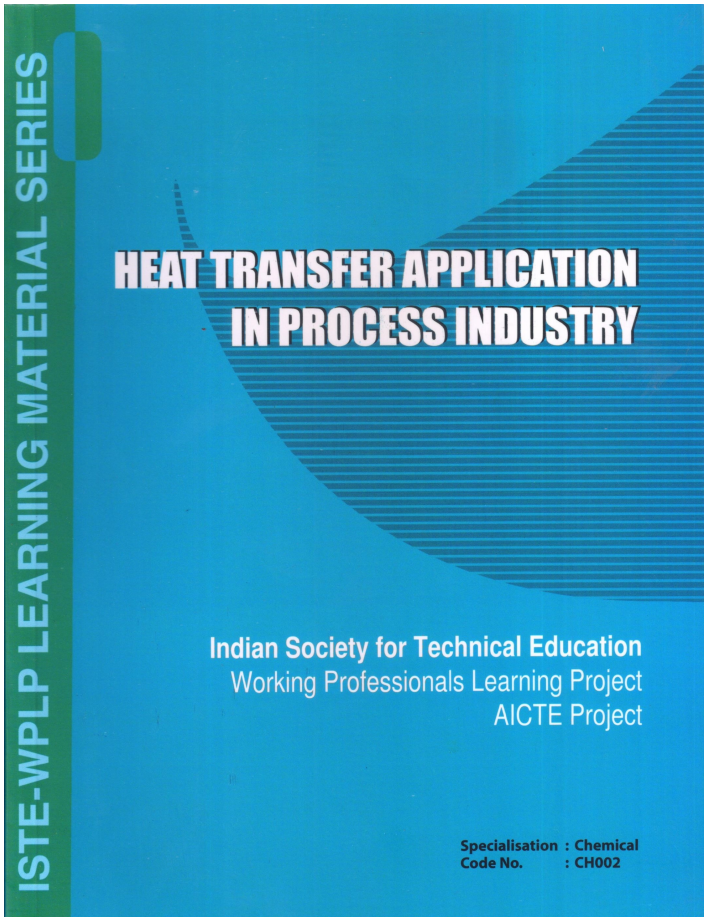

Heat Transfer Application in Process Industry

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Product Description

Heat transmission is very common and familiarly occurs in our daily life, so much that we tend to accept the process for granted and only think of its glaring manifestations and effects. We use our physical intuition to interpret thermal phenomena, and our reactions to hot and cod substances or the environment becomes voluntary. However, when heat transmission is considered from a quantitative point of view, it becomes quite clear that mechanism of heat transfer and their operations in a given system are not so trivial. Though there is evidence of use of fire by cave men about half a million years ago, yet only in relatively recent times the people have understood that heat is a form of energy in transit and that temperature is a measure of that energy present in a body. The importance of intelligent and judicious use of heat energy has been understood only recently when people have realized that source of heat energy such as coal, gas, and oil are not sufficient to sustain the economic development of the modern society. Energy saved is energy generated. Process industries being leading consumers of heat energy, it is imperative on the part of the Managers of Process industries, to take all possible steps to minimize the wasteful use of this scarce resource. The text is intended to provide a good understanding of the basic concepts of heat transfer and enhance the skills of the operators and engineers running not only process industries using heat transfer equipment. It is targeted towards the working professionals who area diploma holders in engineering and graduates in science/engineering manning process industries. Emphasizing focuses upon, the ability to run heat transfer equipments efficiently, by bringing heat loss to unavoidable level.

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Foreword **Preface** **Chapter 1:** Basic of Heat Transfer. **Chapter 2:** Connective Heat Transfer. **Chapter 3:** Design and Analysis of Heat Exchangers. **Chapter 4:** Pinch Technology. **Chapter 5:** Case Study on Heat Loss Through Pipe. **Chapter 6:** Case Study of Heat Exchange Network Without Phase Change. **Chapter 7:** Case Study of a Fired Heater Involving Phase Change. **Chapter 8:** Case Study of an Air Preheater. **Chapter 9:** Improving Performance of a Distillation Column by Providing Pump Around Heat. **Chapter 10:** Energy Saved is Energy Generated. **Chapter 11:** Heat Transfer With Chemical Reactions. **Chapter 12:** Case Study on Temperature Peaking Effect.

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Authors

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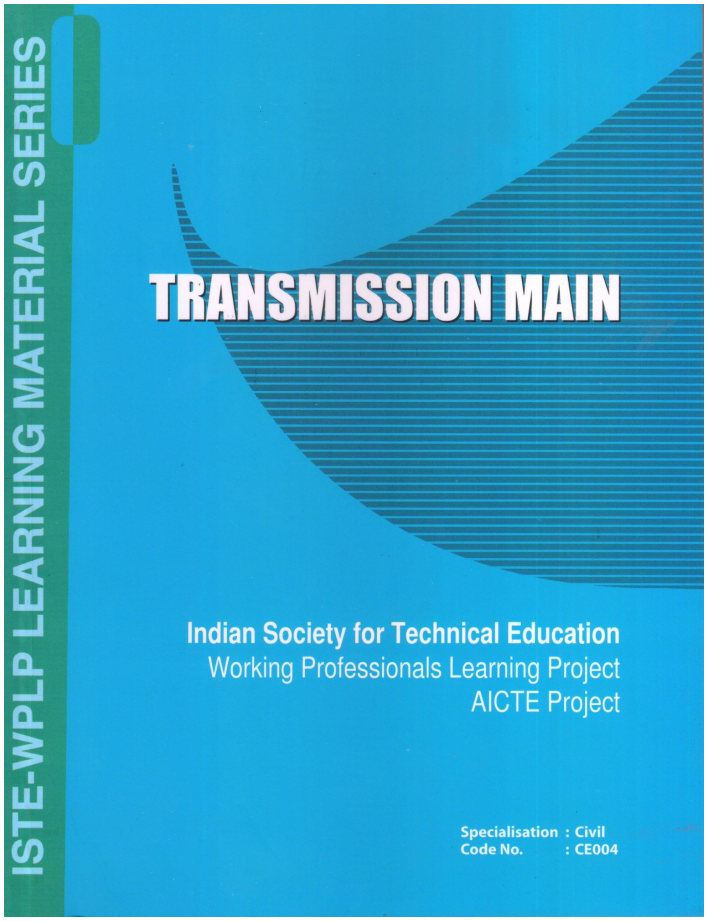

Transmission Main

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Product Description

Water is essential commodity for the survival of life. Providing safe drinking water of adequate quantity for this purpose. Water supply system involves transmission of water from source to area of consumption safely. Transmission Main account for the appreciable part of capital outlay of water system and hence careful consideration of techno-economics is called for while designing the transmission main. This learning material "Transmission Main" clearly mentions selections of pipe material, advantages and disadvantages, optimization of size of main, design criteria and need for protection of pipeline against transient pressure and also procedure for laying and maintenance of pipeline,. This learning material is useful for practicing engineers, administrators and any other authority that are responsible for water supply and irrigation activities.

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Author

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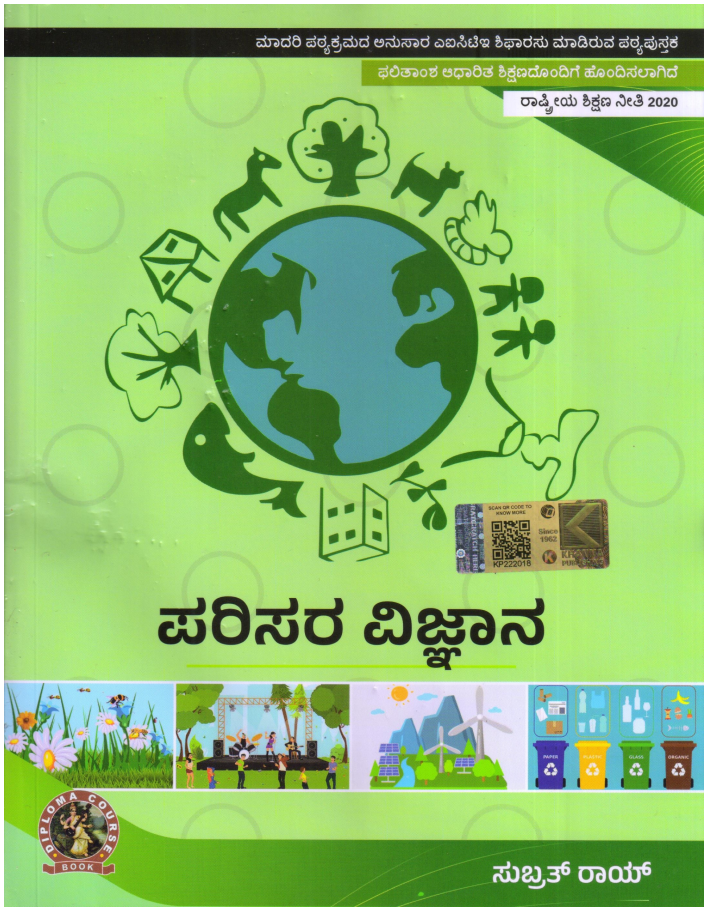

Environmental Science

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Product Description

“Environmental Science” is an audit course for the first year Diploma programme in Engineering & Technology. Syllabus of this book is strictly aligned as per model curriculum of AICTE, and academic content is amalgamated with the concept of outcome- based education. Book covers four units- Ecosystem, Air and Noise Pollution, Renewable Sources of Energy and Solid waste management, ISO 14000 & Environmental Management, Every unit contains as set of exercise at the end of each unit to test the student’s comprehension. Some salient features of the book: 1. Content of the book aligned with the mapping of Course Outcomes, Programs Outcomes and Unit Outcomes. 2. Book provides lots of recent information, interesting facts, QR Code for E-resources, QR Code for use of ICT, projects, group discussion etc. 3. Student and teacher centric subject materials included in book with balanced and chronological manner. 4. Figures and tables are insert to improve clarity of the topics. 5. Objective questions, Short questions and long answer exercise given for practice of students after every unit.

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Unit 4: Soil waste Management, ISO 14000& Environmental management.

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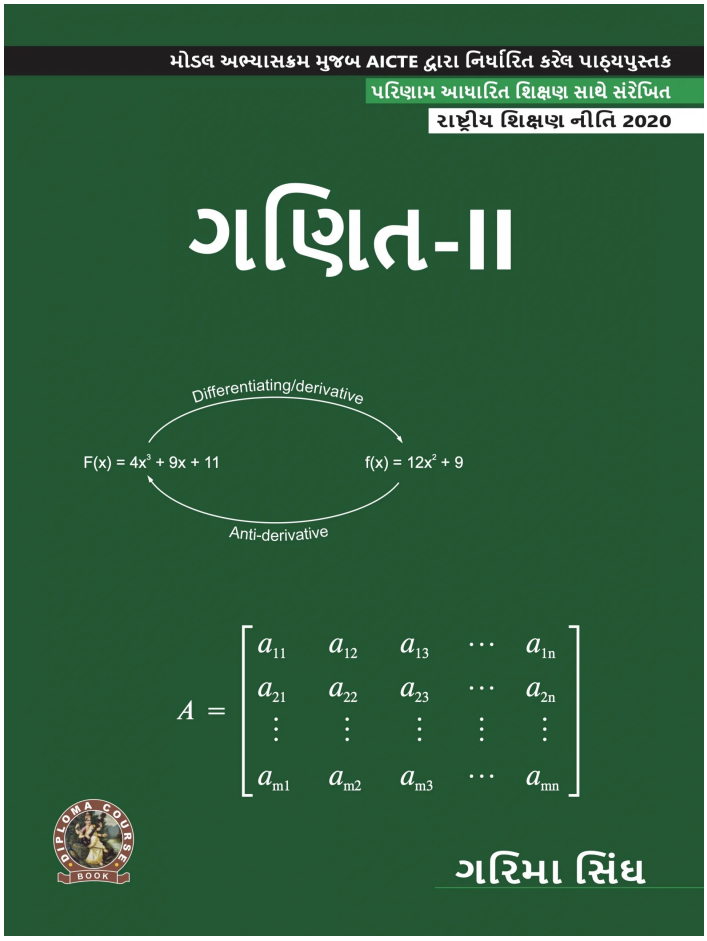
Author

Subrat Roy



Mathematics - II

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Product Description

“Mathematics-ll” is a Compulsory paper for the first year students of Diploma engineering courses (common to all branches). Syllabus of this book is strictly aligned to the model curriculum of AICTE. And academic content is amalgamated with the concept of outcome based education. Apart from diploma it is useful for all students who are interested in basic /elementary mathematics and competitive examinations. Book covers seven topics- Determinants, Matrices, Integral Calculus and it’s applications. Co-ordinate Geometry and it’s applications, vectors and it’s applications, Differential equations. Basic of MATLAB. Each topic is written in an easy and lucid manner with a holistic view. There has been deliberated attempt to keep the number of pages in the book minimum without compromising with the matter. Every chapter contains a set of exercises at the end of each unit to test the student’s comprehension. Some salient features of the book: 1. For direct recapitulation of main concepts, formulae and results a brief summary of each unit has been given. 2. Objective questions and subjective questions are given for practice of students after every unit. 3. Content of the book is aligned with the mapping of Course Outcomes, Programs Outcomes and uni Outcomes. 4. Apart from the theory explanation and solved examples book provides for mini projects, activities, fun facts, QR codes, case studies, video resources etc. 5. The text has been supplemented with notes, remarks, remember sections within grey boxes. 6. Student and teacher centric subject materials are included in the book in a balanced manner. 7. Real life applications are inserted to improve clarity of this topics. 8. Know more section has been introduced which constitutes of additional information related to the topic. 9. Check-out section has been introduced so as to active the curiosity part of the student by correlating all the topics studied in this book with MATLAB. 10. At the end of each unit. An excerpt related to eminent Indian Mathematicians is given so as to make . 11. Student have a glimpse of the

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Foreword, Acknowledgement, Preface, Outcome Based Educations, Course Outcomes, Abbreviations and Symbols, List of Figures, Guidelines for Teachers, Guidelines for Students Chapter 1: Determinants and Matrices. **Chapter 2:** Integral Calculus. **Chapter 3:** Co-ordinate Geometry. **Chapter 4:** Vector Algebra. **Chapter 5:**Differential Equations. **Chapter 6:** Appendices & Annexures.

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