Fundamentals of Electrical Engineering

This book is designed as a textbook for an introductory course in electrical engineering, accessible to undergraduate students in all branches of engineering. It offers detailed treatment of the fundamental concepts of basic electrical engineering.

Written in simple language and organized into fourteen chapters, this book provides a balance between theory and applications. Numerous circuit diagrams and explicit illustrations add to the readability of the text. Important topics covered including electromagnetic field theory, electrostatics, electrical circuits, magnetostatics, network theorems, three-phase system and electrical machines are discussed in detail. Exhaustive pedagogical features including solved problems, numerical exercises and multiple choice questions will help students in understanding and assessing the concepts of electrical engineering.

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Dedication

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Contents

Preface

Science is abstract. Mathematics is the language of science. The challenge of an engineer is to solve the real practical problems of life by applying knowledge of science. This book is fully devoted towards extending the knowledge of science to solve the real-life engineering problems in electrical engineering. Our intention has been to introduce practical electrical engineering challenges to budding engineers and enable them to solve the challenges of technology in a proper way.

We believe the book will be helpful to all the students of engineering of all streams at degree and diploma level. The chapters are organized to meet the requirements of the syllabus of introductory lessons on basic electrical engineering of all universities. We hope the beneficiaries will get to know the subject in an interactive fashion through the numerous solved problems included in the book.

We have tried to explain the theory so that the theorems become tangible and problems become explicit. The book is enriched with its overwhelming pedagogy and practical knowledge. The emphasis is placed on better illustrative understanding of theory related to day-to-day life experiences. The book is expected to be a complete guideline of fundamental knowledge on basic electrical engineering. This knowledge is essential for not only core electrical engineering students but also students from other streams of technical education dealing with power and energy.

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