

## 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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Cambridge University Press  
978-1-107-46435-3 — Fundamentals of Electrical Engineering  
S. B. Lal Seksena , Kaustuv Dasgupta  
Frontmatter  
[More Information](#)

## CAMBRIDGE UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom  
One Liberty Plaza, 20th Floor, New York, NY 10006, USA  
477 Williamstown Road, Port Melbourne, vic 3207, Australia  
4843/24, 2nd Floor, Ansari Road, Daryaganj, Delhi – 110002, India  
79 Anson Road, #06–04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9781107464353](http://www.cambridge.org/9781107464353)

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First published 2016

Printed in India

*A catalogue record for this publication is available from the British Library*

ISBN 978-1-107-46435-3 Paperback

Additional resources for this publication at [www.cambridge.org/9781107464353](http://www.cambridge.org/9781107464353)

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*Dedication*

Uma Dasgupta  
Rekha Dasgupta  
Swati Saxena  
Daivik Saxena

BSKJ

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## 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.

This effort would not have been fruitful without the sincere advice of Dr Utpal Gangopadhyay, Dr Anup Mandol and Dr Jitendranath Bera. We are thankful to Dr Ambarnath Banerji, Dr Tirthankar Datta, Epsita Das and Kanishka Majumder for their encouragement throughout the work. We are grateful to our students Biswarup Ganguly, Subho Paul, Saurabh Bhattacharya, Ayan Das, Rajarshi Roy, Saibal Panda and Debasmita Sen for their engagement in selecting the problems and checking the proofs. We are also thankful to Sushovon, Anirban, Mayukh, Shourasis, Suddhasattwa and Jayanta for their technical cooperation. We are obliged to friends like Kingsuk and Abhijit, without their presence and support the work would not have been possible. And last but not the least we are thankful to all our students who have been the greatest exposure to the transaction of knowledge. We wish all the very best for their present and future.