

*MCQs for Bridge  
Course and Latest  
Solved Question  
Papers*

# ENGINEERING PHYSICS

8<sup>TH</sup> EDITION



**G VIJAYAKUMARI**

# Engineering Physics



# Engineering Physics

(FOR GUJARAT TECHNOLOGICAL UNIVERSITY)

**Eighth Edition**

*(With Practicals)*

**G Vijayakumari**

MSc, MPhil, PGDCA  
Assistant Professor of Physics  
Government Arts College (Men)  
Krishnagiri-635 001



**VIKAS® PUBLISHING HOUSE PVT LTD**



**VIKAS® PUBLISHING HOUSE PVT LTD**

E-28, Sector-8, **Noida**-201301 (UP) India

Phone: +91-120-4078900 • Fax: +91-120-4078999

**VIKAS®** Registered Office: 576, Masjid Road, Jangpura, **New Delhi**-110014. India

E-mail: [helpline@vikaspublishing.com](mailto:helpline@vikaspublishing.com) • Website: [www.vikaspublishing.com](http://www.vikaspublishing.com)

- **Ahmedabad** : 305, Grand Monarch, 100 ft Shyamal Road, Near Seema Hall, Ahmedabad-380 051 • Ph. 079-65254204,
- **Bengaluru** : First Floor, N.S. Bhawan, 4th Cross, 4th Main, Gandhi Nagar, Bengaluru-560009 • Ph. +91-80-22204639, 22281254
- **Chennai** : E-12, Nelson Chambers, 115, Nelson Manickam Road, Aminjikarai Chennai -600029 • Ph. +91-44-23744547, 23746090
- **Hyderabad** : Aashray Mansion, Flat-G (G.F.), 3-6-361/8, Street No. 20, Himayath Nagar, Hyderabad-500029 • Ph. +91-40-23269992 • Fax. +91-40-23269993
- **Kolkata** : 82, Park Street, Kolkata-700017, • Ph. 033-22837880
- **Mumbai** : 67/68, 3rd Floor, Aditya Industrial Estate, Chincholi Bunder, Behind Balaji International School & Evershine Mall, Malad (West), Mumbai-400064 • Ph. +91-22-28772545, 28768301
- **Patna** : Flat No. 101, Sri Ram Tower, Besides Chiraiyatand Over Bridge, Kankarbagh Main Road, Kankarbagh, Patna - 800 020, (Bihar)

Engineering Physics

ISBN: 978-93259-8228-4

First Published 2008

Eighth Edition 2015

Vikas® is the registered trademark of Vikas Publishing House Pvt Ltd

Copyright © Vikas® Publishing House Pvt Ltd., 2008, 2013, 2015

All rights reserved. No part of this publication which is material protected by this copyright notice may be reproduced or transmitted or utilized or stored in any form or by any means now known or hereinafter invented, electronic, digital or mechanical, including photocopying, scanning, recording or by any information storage or retrieval system, without prior written permission from the publisher.

Information contained in this book has been published by VIKAS® Publishing House Pvt Ltd and has been obtained by its Authors from sources believed to be reliable and are correct to the best of their knowledge. However, the Publisher and its Authors shall in no event be liable for any errors, omissions or damages arising out of use of this information and specifically disclaim any implied warranties or merchantability or fitness for any particular use. Disputes if any are subject to Delhi Jurisdiction only.

Printed in India.

*Dedicated to*  
**My Beloved Parents**  
**&**  
**Well-Wishers**



# Preface

---

This textbook is written and designed with utmost care bearing the needs of the first year BE/BTech students in mind. Giving greatest attention to the prescribed syllabies the book has a comprehensive coverage.

All efforts have been made to make the concepts clear to the students. In each unit, the topics and their sub topics are carefully arranged and elaborately discussed from the elementary level. Illustrative examples have been given wherever necessary. Continuity in the development of subject matter and uniformity in the style of presentation has been specifically taken care of for the convenience of the students.

At the end of each chapter, a number of assignment problems, all the possible short questions with answers and some descriptive answer questions have been provided.

Although proper care has been taken during the preparation and proof reading of the manuscript, some errors may still have crept in. Any omissions, errors and suggestion brought to the knowledge of the author will be gratefully acknowledged and would be rectified in the subsequent edition.

**G Vijayakumari**



# Acknowledgement

---

First of all I wish to thank the authorities of **Directorate of Collegiate Education**, Tamilnadu, for granting permission in bringing out this edition.

With a great sense of respect, I thank **Dr K Kumaraswamy** for his long and refreshing encouragement. I am very grateful to him for the clarification and suggestions given to me at various instances during the preparation of this book and also in my career.

It is my privilege and pleasure to express my genuine appreciation to **Dr UDAY N TRIVEDI** Assistant Professor of Physics, Instrumentation & Control Engineering Department, Vishwakarma Government Engineering College, Chandkheda, Gandhinagar and **Dr Vani K Chhaniwal**, Assistant Professor of Physics, PIET for their valuable suggestion and constructive criticism.

I appreciate the cooperation and support extended by **Mr N Mahesh** and his family members. I am grateful to them for their constant encouragement and keen interest in my writing and publishing this book.

I pay regards to my ever-loving colleagues and well-wishers for their immense help at each and every step in completing this textbook.

I am indebted to the many students I have had over the years for their enthusiasm and constructive criticism.

I also acknowledge all those who have, in one way or the other, contributed to this work. I am indeed grateful to all the authors and publishers of books, which have been referred to, during the preparation of this text.

I express my sincere thanks to **Vikas Publishing House Pvt Ltd** and its **editorial team** for their kind support and refreshing encouragement in bringing out this edition in its excellent form in record time.

**G Vijayakumari**

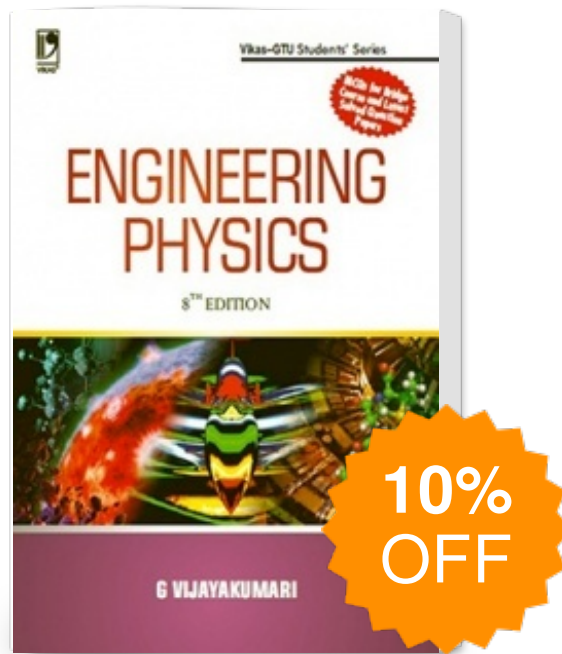
# Syllabus

## GUJARAT TECHNOLOGICAL UNIVERSITY

### ENGINEERING PHYSICS

Sr No.	Topics	Teaching Hrs.	Module Weightage
1	<b>DIELECTRICS:</b>		
	<ul style="list-style-type: none"> <li>Definitions : Electric field intensity, Electric flux, Dielectric parameters</li> <li>Types of dielectric materials : Solid, Liquid and Gaseous</li> <li>Classification of electrical insulating materials</li> <li>Claussius-Mosotti equation</li> <li>Uses of dielectric materials; <b>Capacitors: Single and multilayer, Polymeric Film, Electrolytic; Power and Distribution transformers, other applications</b></li> </ul>	5	15%
2	<b>MAGNETIC MATERIALS:</b>		
	<ul style="list-style-type: none"> <li>Definitions : <b>Magnetic moment, Magnetic dipole, Magnetic Field strength, Magnetic flux density, Intensity of magnetization, Magnetic dipole moment, Magnetic field intensity, Magnetic permeability, Magnetic susceptibility, Bohr magnetron</b></li> <li>Classification of magnetic materials on the basis of magnetic moment</li> <li>Soft and hard magnetic materials</li> <li>Anti-ferromagnetic materials</li> <li>Ferrites</li> <li>Magnetic recording and readout storage of magnetic data</li> </ul>	5	15%
3	<b>ACOUSTICS AND ULTRASONICS:</b>		
	<ul style="list-style-type: none"> <li>Introduction, Classification and Characteristics of sound</li> <li>Sabine's formula for reverberation (without derivations)</li> <li>Introduction of absorption co-efficient</li> <li>Sound absorbing materials</li> <li>Factors affecting the acoustics of buildings and their remedies</li> <li>Sound insulation</li> <li>Noise pollutions</li> <li>Noise control in machines</li> <li>Properties of ultrasound</li> <li>Generation of ultrasound by (1) piezoelectric method and (2) magnetostriction method</li> <li>Methods for ultrasound velocity measurement</li> <li>Applications of ultrasound: <b>Industry, Medicine</b></li> <li>NDT through Ultrasonics</li> </ul>	5	15%
4	<b>SUPERCONDUCTIVITY:</b>		
	<ul style="list-style-type: none"> <li>Superconductivity</li> <li>General properties of superconductors</li> <li>Types of superconductors</li> </ul>	4	10%
Sr No.	Topics	Teaching Hrs.	Module Weightage

# Engineering Physics



Publisher : SChand Publications ISBN : 9789325982284

Author : G. Vijayakumari

Type the URL : <http://www.kopykitab.com/product/8059>



## Get this eBook