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AICTE RECOMMENDED TEXTBOOK
POWER
ELECTRONICS
Dr. P. S. Bimbhra
BOTC

# **Power Electronics**

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## **Product Description**

This book is designed to sever a textbook for the students of engineering studying a course on power Electronics. It provides a lucid and comprehensive treatment of the topics covered in the book. A large number of illustrative figures and a wide variety of worked examples add to the clarity of subject mater. This book would be found suitable as a textbook for the students pursuing courses in the areas of the Electrical, Electronics, Instrumentation, Telecommunications and Mechatronics.



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- **Chapter 1:** Introduction.
- Chapter 2: Power Semiconductor Diodes and Diode Circuits.
- **Chapter 3:** Diode Rectifiers.
- Chapter 4: Power Transistors.
- **Chapter 5:** Thyristors.
- Chapter 6: Phase Controlled Rectifiers.
- Chapter 7: DC Choppers.
- Chapter 8: Inverters.
- Chapter 9: AC Voltage Controllers.
- Chapter 10: Cycloconverters.
- Chapter 11: Some Applications.
- Chapter 12: Electric Drives.
- Chapter 13: Power Factor Improvement.
- Chapter 14: Switching Mode DC-DC Converters.
- Chapter 15: Power Supplies.
- **Chapter 16:** Flexible AC Transmission Systems.

#### Appendix A: Fourier Analysis.

- **Appendix B:** Laplace Transforms.
- Appendix C: Some Useful Functions.
- Appendix D: References.

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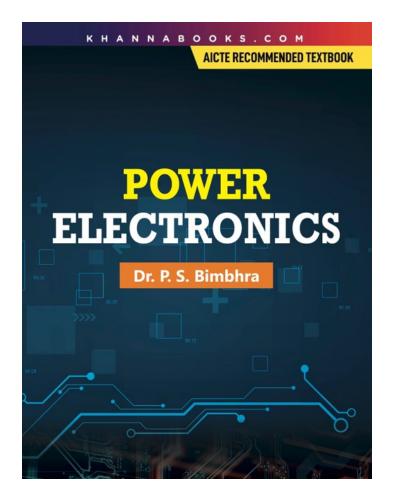
### Author

### P.S. Bimbhra

Dr. P.S. Bimbhra retired as a professor of Electrical and Electronics Engineering from T.I.E.T. Patiala. A graduate of Punjab Engineering College, Chandigarh, he received his M.E. (Hons.) and Ph.D. from IIT Roorkee. He is fellow of the Institution of Engineers and a life member of ISTE. His areas of current interests include Electrical Machines, Power Electronics and Electric Drives.



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# **Power Electronics**

Author :	P.S. Bimbhra
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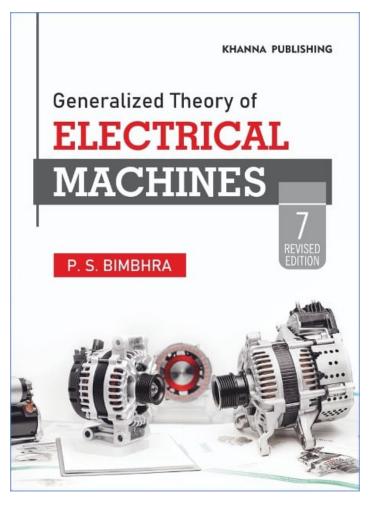
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Chapter 4: Power Transistors. Chapter 5: Thyristors. Chapter 6: Phase Controlled Rectifiers. Chapter 7: DC
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Some Applications. Chapter 12: Electric Drives. Chapter 13: Power Factor Improvement. Chapter 14: Switching
Mode DC-DC Converters. Chapter 15: Power Supplies. Chapter 16: Flexible AC Transmission Systems. Appendix
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### Author

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**Generalized Theory of** 

### **Product Description**

This textbook "Generalized Theory of Electrical Machines" is based on the latest syllabus of the Universities and Educational Institutes. In this edition, some materials of the book has been rewritten so as to make the presentation easily comprehensible. More illustrative examples mainly from IAS, IES and GATE and other competitive examinations have been added and problems material with answers, at the end of each chapter, has been considerably enlarged. Salient Features: 1. Elements of Generalized Theory 2. Linear Transformations in Machines 3. D.C. Machines 4. Polyphase Synchronous Machines 5. Polyphase Induction Machines 6. Single Phase Motors 7. A.C. Commutator Machines 8. Transformers 9. Special Machines 10. Appendices 11. References

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Chapter 1: ELEMENTS OF GENERALIZED THEORY. Chapter 2: LINER TRANSFORMATIONS IN MACHINES. Chapter 3:
D.C. MACHINES. Chapter 4: POLYPHASE SYNCHRONOUS MACHINES. Chapter 5: POLYPHASE INDUCTION MACHINES.
Chapter 6: SINGLE PHASE MOTORS. Chapter 7: A.C. COMMUTATOR MACHINES. Chapter 8: TRANSFORMERS.
Chapter 9: SPECIAL MACHINES. APPENDIX INDEX REFERENCES

### Author

### P.S. Bimbhra

Dr. P.S. Bimbhra retired as a professor of Electrical and Electronics Engineering from T.I.E.T. Patiala. A graduate of Punjab Engineering College, Chandigarh, he received his M.E. (Hons.) and Ph.D. from IIT Roorkee. He is fellow of the Institution of Engineers and a life member of ISTE. His areas of current interests include Electrical Machines, Power Electronics and Electric Drives.



### **Khanna Publishing House**



# Electrical Machinery

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# **Electrical Machinery**

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### **Product Description**

This thoroughly revised and updated edition presents a rigorous and comprehensive treatment of transformers and more common types of rotating electrical machine types. Each chapter begins with rudimentary concepts and is so developed that an average student can easily comprehend it. The salient features of this book are :In-depth coverage of transformers, dc machines, 3-phase synchronous, and induction machines. Highlights that electrical machines operate on the same basic principles. Devotes a chapter on electromechanical-energy conversion principles and another on dc/ac machine windings. Drive aspects and applications are discussed for each machine type. Clarity of presentation is enhanced by illustrative figures and examples selected from question-papers of important Universities, IAS, IES, and GATE. Includes numerous problems, conceptual questions and objective-type questions (with answers) to help the reader master the basic concepts. This edition includes a chapter on "basic principles of electrical machines." All these features contribute towards making this book an ideal text for undergraduate students of degree classes. Practicing engineers, through self-study, will also find this volume useful to them.

### **Table of Contents**

Chapter 1: Basic Principles of Electrical Machines. Chapter 2: Transformers. Chapter 3: Electromechanical Energy Conversion Principles. Chapter 4: Basic Concepts of Rotating Electrical Machines. Chapter 5: D.C. Machines.
 Chapter 6: Polyphase Synchronous Machines. Chapter 7: Polyphase Induction Motors. Chapter 8: Armature windings. APPENDIX - A: Magnetic Circuits. APPENDIX - B: Three-Phase Circuits. APPENDIX - C: Objective Type Questions. APPENDIX - D: Short-Answer Type Questions. APPENDIX - E: Index.

### Author

### P.S. Bimbhra

Dr. P.S. Bimbhra retired as a professor of Electrical and Electronics Engineering from T.I.E.T. Patiala. A graduate of Punjab Engineering College, Chandigarh, he received his M.E. (Hons.) and Ph.D. from IIT Roorkee. He is fellow of the Institution of Engineers and a life member of ISTE. His areas of current interests include Electrical Machines, Power Electronics and Electric Drives.



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Dr. P. S. Bimbhra

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**Electrical Machinery** 

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Basic Principles of Electrical Machines Chapter 1. Transformers. Chapter 2. Electromechanical Energy Conversion Principles.
Chapter 3. Basic Concepts of Rotating Electrical Machines. Chapter 4. D.C. Machines. Chapter 5. Polyphase Synchronous
Machines. Chapter 6. Polyphase Induction Motors. Chapter 7. Armature windings. Appendix - A: Magnetic Circuits. Appendix - B:
Three-Phase Circuits. Appendix - C: Objective Type Questions. Appendix - D: Short-Answer Type Questions. Appendix - E:
Appendix. Index

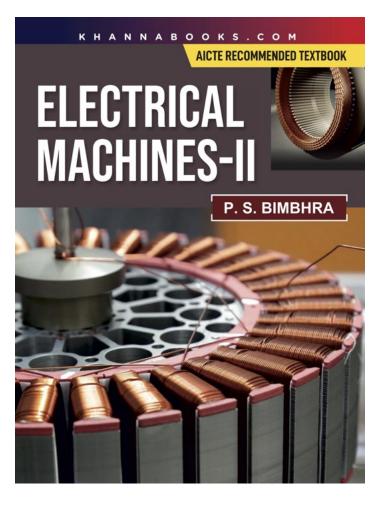
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### P.S. Bimbhra

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# **Electrical Machines - II**

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### **Khanna Publishing House**

### **Product Description**

This book on "Electrical Machines-II" is intended to serve as a text book for the students of Electrical Engineering in general and for those studying in institutions where AICTE model curriculum has been adopted. This book serves as a supplement to the already published book on "Electrical Machines-I". The topics covered in this book pertain to the syllabus contents as prescribed by AICTE for the course on "Electrical Machines II". Chapter 1. Describes the fundamental of AC machine windings. Here general terms associated with armature winding are defined first. Then, air-gap mmf waves produced by concentrated and distributed windings are explained. Concepts of winding factor is also given in this chapter. Chapter 2. Describes the concepts of constant magnetic field, pulsating magnetic field and rotation magnetic field. Chapter 3. Three-phase induction motor is described in detail so far as its constructional features, principle of operation, rotor and stator equivalent circuits and torque-slip characteristics are three-phase induction generator working and doubly-fed induction machines. Chapter 4: Constructional features, principle of operation, double-revolving field theory and starting methods of single-phase induction motor are described. Chapter 5. Pertains to the analysis of three-phase synchronous machines. In this chapter both cylindrical-rotor type and salient-pole type machines are discussed in detail. Steady-state phasor diagram of each type is developed for analysis purposes. Steady-state power-angle characteristics and operating characteristics are also presented in this chapter. The book contains a large number of worked examples to highlight the principles and concepts of the topics covered in this book. Unsolved problems at the end of each chapter are included for practice. Objective type questions included at the end of each chapter will help the readers to evaluate their comprehension of the chapter topics.

### **Table of Contents**

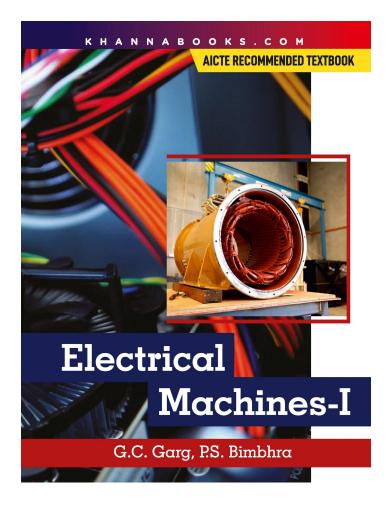
Chapter 1: Fundamentals of AC machine windings. Chapter 2: Pulsating and revolving magnetic fields. Chapter
3: Induction Machines. Chapter 4: Single- Phase Induction motors. Chapter 5: Synchronous machines.

### Author

**Dr. P.S. Bimbhra** retired as a professor of Electrical and Electronics Engineering from T.I.E.T. Patiala. A graduate of Punjab Engineering College, Chandigarh, he received his M.E. (Hons.) and Ph.D. from IIT Roorkee. He is fellow of the Institution of Engineers and a life member of ISTE. His areas of current interests include Electrical Machines, Power Electronics and Electric Drives.



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# **Electrical Machines - I**

Author :	G.C. Garg
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### **Product Description**

This book is written so that it serves as a text book for B.E./B. Tech degree students in general and for the institutions where AICTE model curriculum has been adopted. TOPICS COVERED IN THIS BOOK:- 1. Magnetic field and Magnetic circuit 2. Electromagnetic force and torque 3. D.C. Machines 4. D.C. Machines-Motoring and Generation SALIENT FEATURES:- 1. Self-contained, self-explanatary and simple to follow text. 2. Numerous worked out examples. 3. Well Explained theory parts with illustrations. 4. Exercises, objective type question with answers at the end of each chapter.

### **Table of Contents**

Chapter 1: Magnetic Fields and Magnetic Circuits. Chapter 2: Electromagnetic Force and Torque. Chapter 3: The

Direct Current Machines Chapter 4: DC Machine-Motoring and Generation Chapter 5: Transformers Khanna Publishing House

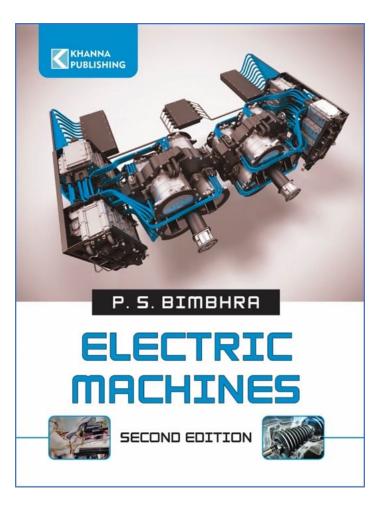
### **Authors**

**Dr. P.S. Bimbhra** retired as a professor of Electrical and Electronics Engineering from T.I.E.T. Patiala. A graduate of Punjab Engineering College, Chandigarh, he received his M.E. (Hons.) and Ph.D. from IIT Roorkee. He is fellow of the Institution of Engineers and a life member of ISTE. His areas of current interests include Electrical Machines, Power Electronics and Electric Drives.

**Prof. G.C. Garg** retired as registrar from the Technical Education Department Haryana, Chandigarh. Before that he was Head of Dept. In Electrical Engineering at Govt. Institution of Engineering Ambala City, Haryana. After Graduation in Electrical Engineering he has gone 2½ years regular advance course in Electrical Engineering with specialization of Electrical Machines in T.T.T.I. Chandigarh in collaboration with Netherlands Govt. under the guidance of Prof. B. Mone who was authority in Electrical Machines and Electrical Power. He has also undergone one and a half year Industrial/Power Projects/Field and Transmission & Distribution Power Stations. He is fellow of the Institution of Engineers (India).



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# **Electric Machines**

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### **Product Description**

This book is suitable as a textbook for undergraduate courses in electric machines. Subject matter in each chapter in so developed from basic principles that an average student can understand it easily. Since the text is written in simple language, this book would be found suitable even for diploma students and AMIE candidates. GATE and UPSC candidates would also find the book quite useful.

### **Table of Contents**

**Chapter 1:** Transformer. **Chapter 2:** Electromechanical Energy Conversion Principles. **Chapter 3:** Basic Concepts of Rotating Electric Machines. **Chapter 4:** D.C. Machines. **Chapter 5:** Synchronous Machines. **Chapter 6:** Three Phase Induction Motors. **Chapter 7:** Single Phase Motors. **Chapter 8:** Special Machines.



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### Author

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