ELECTRICAL ENGINEERING

BY E. E. KIMBERLY, PROFESSOR OF ELECTRICAL ENGINEERING, THE OHIO STATE UNIVERSITY

THIRD EDITION

INTERNATIONAL TEXTBOOK COMPANY
SCRANTON, PENNSYLVANIA

FIRST EDITION
First Printing June, 1939
Second Printing January, 1940

SECOND EDITION
First Printing July, 1946
Second Printing January, 1947
Third Printing March, 1948

THIRD EDITION
First Printing January, 1951

THE HADDON CRAFTSMEN, INC.
SCRANTON, PENNSYLVANIA

48705

Preface for Third Edition

This book is written especially for engineering college students who are not majoring in electrical engineering and also for those who are majoring in electrical communication.

The beginning portion contains enough single-phase, polyphase, and transient circuit analysis to enable the student to understand the more common types of industrial electrical machinery as described in the middle half and also to understand the more common elements of electronic industrial control described in the last portion. It is believed that the contents are sufficient to give a "non-electrical" engineer a good foundation or working knowledge of all electrical apparatus that he is likely to use. It should enable him to speak and understand the language of the electrical engineer.

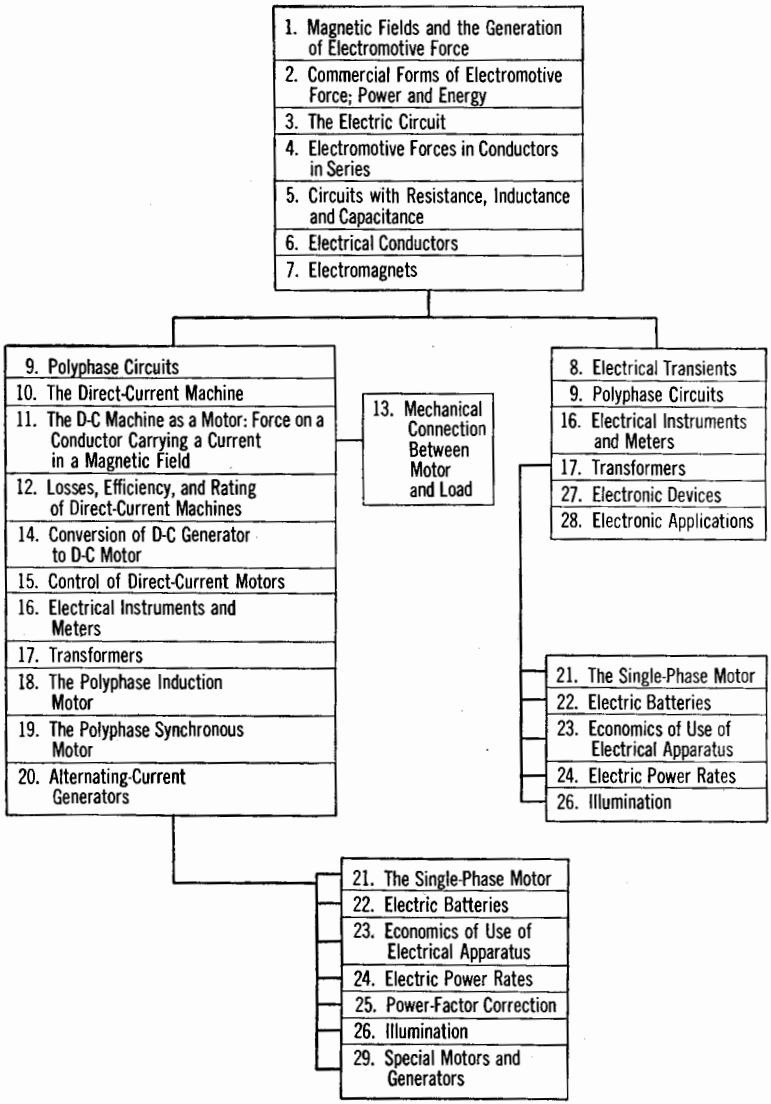
Furthermore it is believed that an electrical engineer whose major interest is communication will find about all of the working knowledge of power machinery that he is likely to need in his chosen specialty.

The choice of material is also intended to provide an introductory course for electrical engineers where that course will be followed by more detailed courses. The pace is set to enable the instructor to start laboratory assignments almost immediately after the first lecture.

Inasmuch as it may be desirable to omit some parts of the content to accommodate a foreshortened course, a flow sheet has been added to show chapters that must be studied in sequence and others that may be interspersed as laboratory progress permits.

E. E. KIMBERLY

FLOW SHEET


1. Magnetic Fields and the Generation of Electromotive Force
2. Commercial Forms of Electromotive Force; Power and Energy
3. The Electric Circuit
4. Electromotive Forces in Conductors in Series
5. Circuits with Resistance, Inductance and Capacitance
6. Electrical Conductors
7. Electromagnets
9. Polyphase Circuits
10. The Direct-Current Machine
11. The D-C Machine as a Motor: Force on a Conductor Carrying a Current in a Magnetic Field
12. Losses, Efficiency, and Rating of Direct-Current Machines
14. Conversion of D-C Generator to D-C Motor
15. Control of Direct-Current Motors
16. Electrical Instruments and Meters
17. Transformers
18. The Polyphase Induction Motor
19. The Polyphase Synchronous Motor
20. Alternating-Current Generators
13. Mechanical Connection Between Motor and Load
8. Electrical Transients
9. Polyphase Circuits
16. Electrical Instruments and Meters
17. Transformers
27. Electronic Devices
28. Electronic Applications
21. The Single-Phase Motor
22. Electric Batteries
23. Economics of Use of Electrical Apparatus
24. Electric Power Rates
26. Illumination
21. The Single-Phase Motor
22. Electric Batteries
23. Economics of Use of Electrical Apparatus
24. Electric Power Rates
25. Power-Factor Correction
26. Illumination
29. Special Motors and Generators

Contents

PAGE