

PRINCIPLES
OF
ELECTRON TUBES

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PRINCIPLES OF ELECTRON TUBES

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PREFACE

The increasing importance of electron tubes in fields of engineering other than communication has necessitated the development of courses offered primarily for students who do not intend to specialize in communication. Experience has also shown the value of an introductory course for those who do specialize in this field. The need for a text suitable for such courses has been apparent for some time. "Principles of Electron Tubes," which is essentially an abridgement of "Theory and Applications of Electron Tubes," is designed to meet this need. It should also prove suitable for home study by students who have not had an introductory course on electron tubes.

As in "Theory and Applications of Electron Tubes," the author has attempted to present fundamental principles together with discussions of representative practical circuits. He believes that the material included in this book can be adequately covered in a three-hour one-semester course, and that such a course will enable the student to understand typical industrial and laboratory applications of electron tubes and to design simple circuits to meet specific needs.

The student who studies electron tubes for the first time is likely to be confused and discouraged by the large number of symbols necessitated by the fact that electron tubes are non-linear circuit elements. In order to reduce the number of symbols required, therefore, several simplifying assumptions are made in Chaps. 3 and 4. The importance of these assumptions is, however, pointed out, and the interested student is referred to rigorous treatments. The derivation and use of equivalent circuits are emphasized. The problems on equivalent circuits should tie in nicely with material presented in courses on a-c circuit theory.

Because of the present great interest in frequency modulation, even on the part of the layman, a brief treatment of the subject is included. The entire chapter on modulation and detection may be omitted without loss of continuity if the instructor feels

that this material belongs only in courses designed for students majoring in communication.

Since the symbols used in this book are included in those used in the unabridged edition, the student who wishes to proceed to an advanced course in electron tubes will experience no difficulty in changing to the unabridged edition.

The author wishes to acknowledge the helpful suggestions and criticisms of Prof. Hugh A. Brown and Dr. Gilbert H. Fett of the Department of Electrical Engineering; and of Mr. A. James Ebel, chief engineer of radio station WILL, University of Illinois. The author is also indebted to the Allis-Chalmers Manufacturing Company, the Clough-Brengle Company, the General Electric Company, the General Radio Company, the Ken-rad Tube and Lamp Corporation, the Radio Corporation of America, and the Westinghouse Electric & Manufacturing Co. for valuable information, photographs, and diagrams.

HERBERT J. REICH.

URBANA, ILL.,
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