



**GOVERNMENT OF TAMIL NADU**

**HIGHER SECONDARY SECOND YEAR**

**VOCATIONAL EDUCATION**

**BASIC ELECTRONICS ENGINEERING**

**Theory & Practical**

A Publication Under Free Textbook Programme of Government of Tamil Nadu

**Department of School Education**

**Untouchability is Inhuman and a Crime**

## Government of Tamil Nadu

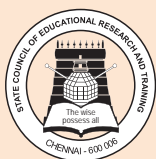
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# PREFACE

This book is written in accordance with the new guidelines formulated by Tamilnadu Government Curriculum Framework (TNCF-2017) Committee to strengthen the higher secondary education on par with the Global Standards by providing different kinds of learning opportunities to promote holistic approach to education. The objectives of this book on Electronics Equipment is not only for knowledge upgradation but also for providing basic skills viz., hands-on-experience with electronic circuits, trouble shooting of minor problem in electronic equipment, handling of test and measuring equipment and installation and maintenance of equipment.

This book covers the up-to-date curriculum in the area of Electronics and related fields to discourage rote learning and to encourage the multidisciplinary approach of Electronics with different subject areas. Each Chapter has been designed and written in such a way to inculcate the basic knowledge of the Electronics in the students and also to give opportunity to the stakeholders to provide a platform for exhibiting their creativity. The success of this endeavor depends on the participation of the students, subject teachers and school headmasters to encourage the students to giving the opportunities for own learning to pursue imaginative activities and inquisitiveness.

Each Chapter starts with the introduction of the respective topic and covers the contribution from different domains such as brief history of scientists and their related inventions, proverbs or Tamil literature quotes related to the particular scientific concept, learning objectives, learning outcomes and detailed description of the concepts with the related figures, equations for the easy and in-depth understanding of the subject matter. Further, several solved problems and self-evaluation exercises are given in each Chapter to motivate the students for self-learning and to develop self-confidence in the subject matter and for practical application.

We appreciate the initiatives, encouragement and guidance extended by the Tamilnadu Curriculum Development committee headed by Prof. M. Anandakrishnan, who is responsible for shaping this book to this formidable level. We are grateful to the contributions of several teachers, headmaster, technical staff and office staff for the development of this textbook to this level. We are indebted to the institutions and organisations, which have generously

permitted us to draw upon their resources, material and personnel. We are especially grateful to the members of the Tamilnadu State Council for Education Research and Training (SCERT) for their valuable support. For the systemic reform and continuous improvement in the standard of this book, we welcome critical comments and valuable suggestions, which will enable us to undertake further revision and refinement of the subject matters covered in this book.

We hope this book will bring an appreciable change in the teaching-learning process. We wish all the stakeholders to make use of this book effectively, to get the intended outcomes and benefits.

*With best wishes,*

**Prof. Dr. Damodaran Nedumaran**

Chairperson



## HOW TO USE THE BOOK



### Learning Objectives

Learning objectives briefly describe the contents of the unit. It also outlines the knowledge gained by the students.



Interesting facts to motivate students to gain more information regarding the unit.

### Infographics

Visual representations of the unit for better understanding.

### Concept Figures

Conceptual diagrams that potrays the technique of drafting and sewing.



To facilitate reading at anytime, anywhere.

### Activity

Skill oriented activities based on the units for better understanding.

### Evaluation

Access students under the category of understanding, reproducing and application oriented.

### Glossary

Explanation of significant terms.

### Model Question Paper

A model question paper to help students to face examinations.

### References

List of related books for further reading.

### Case Study

Brief note on successful students who have pioneers in the field.

### Career Guidance

List of job opportunities on successful completion of course

## CAREER GUIDANCE AFTER COMPLETION OF 12<sup>TH</sup> STANDARD

After completion of Higher Secondary (+2) Vocational Engineering (EE) course, students can pursue the following courses / Jobs / Self-employment as detailed below:

### Vocational Stream

The Vocational Engineering students are blessed with two major opportunities after completing their +2.

Vertical Mobility	Job / Self Employment
<ol style="list-style-type: none"> <li>1. Lateral Entry for DIPLOMA in Engineering (ECE, EEE, E&amp;I)</li> <li>2. Separate allocation given for Vocational (Engg &amp;Tech) students in Engineering (B.E.,) Courses (ECE, EEE, E&amp;I). Even first 2 days counseling is allotted for Engineering Vocational students.</li> <li>3. B.Sc., (Eletronics), B.Voc (NSQF)</li> <li>4. Lateral entry opportunities (for B.E./B.Tech.,) after completing Diploma.</li> </ol>	<ol style="list-style-type: none"> <li>1. Job opportunities offered by few industries like TVS, Leyland, Lucas, TI-cycles, TITAN watches.</li> <li>2. Audio/Video Equipment Service Centre. Computer Hardware service</li> <li>3. They can register their names in the "Board of Apprenticeship Training", 4<sup>th</sup> Cross street, CIT Campus, Tharamani, Chennai – 600013 for employment opportunities.</li> <li>4. The students who need for employment opportunities and career guidance, including counselling both in Government, Private and Public sector can see the website of <a href="http://www.ncs.gov.in">www.ncs.gov.in</a> for further details.</li> </ol>

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**E-book**



**Assessment**



**DIGI-Links**



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# BASIC ELECTRONICS ENGINEERING Theory