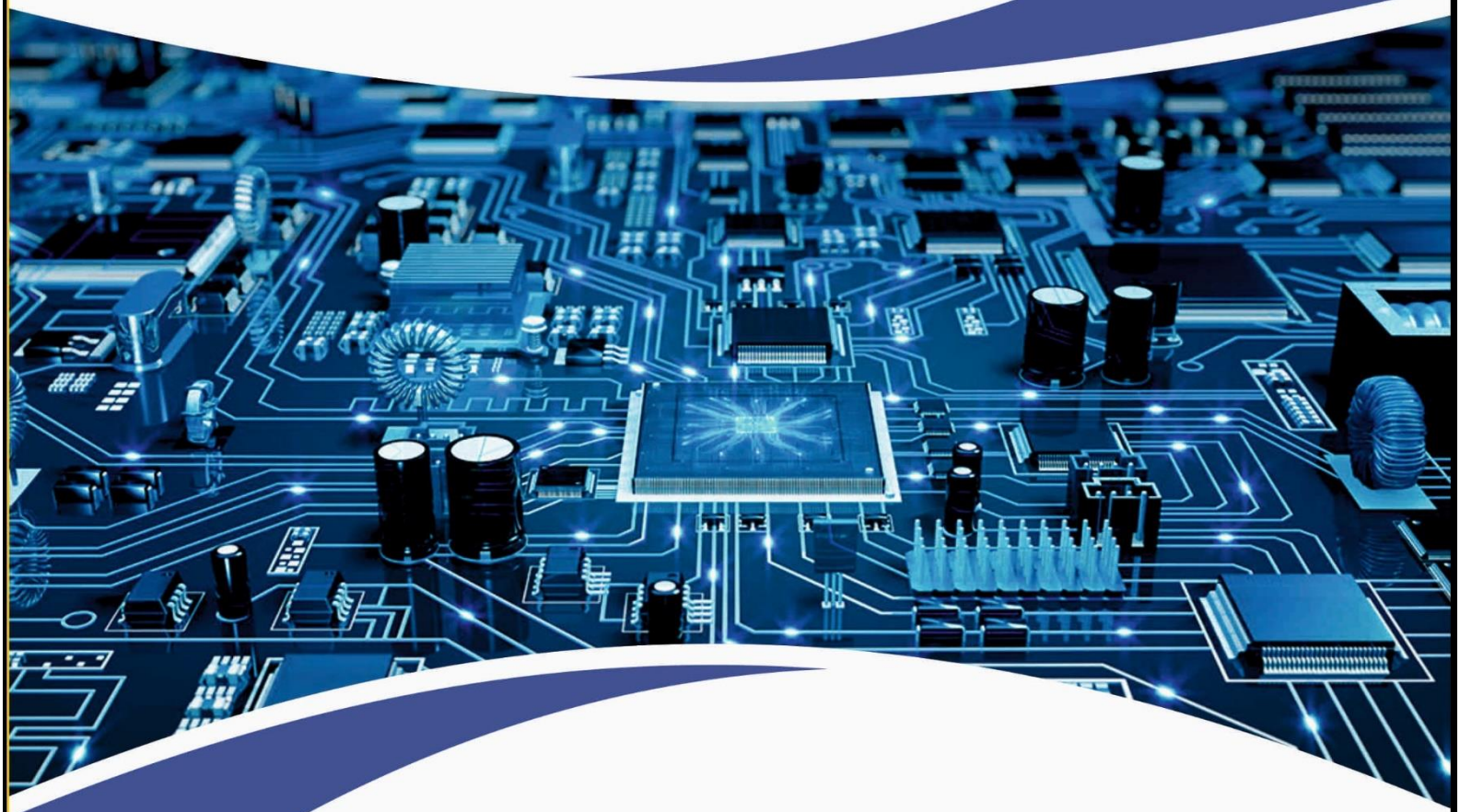

FUNDAMENTALS OF ELECTRONICS ENGINEERING:

Lecture Notes

Dr. Baibaswata Mohapatra
Dr. Diptimayee Dash

Kripa Drishti Publications, Pune.

FUNDAMENTALS OF ELECTRONICS ENGINEERING:

LECTURE NOTES

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PREFACE

It gives us immense pleasure to present the first edition of Fundamentals of Electronics Engineering: Lecture Notes. This book is designed to provide a comprehensive foundation in electronics engineering for undergraduate students, offering a clear and concise approach to fundamental concepts, backed by practical insights.

Dr. Mohapatra would like to express his deepest gratitude to Dr. Dhiraj Gupta, Director of Greater Noida Institute of Technology (Engg. Institute), for his invaluable support and guidance throughout this endeavour. My sincere thanks also go to Dr. Sanjay Kumar, Dean Academics, and Dr. Vivek Kumar Chopra, Professor of Electrical Engineering, GNIOT (Engg. Institute), for their continuous encouragement and insightful feedback, which greatly helped in shaping the content and direction of this book.

Dr. Mohapatra would like to sincerely acknowledge the Management of GNIOT (Engg. Institute) for their financial support from time to time, which has been crucial in the successful development and completion of this book. Their commitment to fostering academic growth is greatly appreciated.

The contributions of past B.Tech students of GNIOT (Engg. Institute) have been immensely valuable, helping to refine and improve the quality of the content. Their feedback and suggestions provided important insights that ensured the book meets the needs of students in the most effective manner.

Dr. Dash especially thankful to Dr. Reena Sharma, Head of the Electrical and Electronics Engineering Department, Galgotias College of Engineering and Technology, for her unwavering encouragement and motivation, which pushed her to complete this project. Her constant support has been instrumental in the realization of this book.

The authors would also like to extend their appreciation to K.D. Publisher and their dedicated editorial team for their meticulous work in editing, designing, and publishing this book. Their professionalism and commitment to excellence have made this publication possible.

The authors hope this book will serve as a useful resource for students and educators alike, and welcome feedback from the readers to further improve the content in future editions.

Dr. B. Mohapatra
Dr. D. Dash

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Abbreviations

Direct Corresponding (DC)

Alternating Current (AC)

Ripple Factor (RF)

Peak Inverse Voltage (PIV)

Light-Emitting Diode (LED)

Bipolar Junction Transistor (BJT)

Common Base (CB)

Common Emitter (CE)

Common Collector (CC)

Input Resistance (R_I)

Output Resistance (R_O)

Field-Effect Transistor (FET)

Metal-Oxide Semiconductor FET (MOSFET)

Enhancement MOSFET (E-MOSFET)

Depletion MOSFET (D-MOSFET)

Bipolar Junction Transistors (BJTs)

Substrate (SS)

Drain (D)

substrate Source (S).

Gate (G)

Integrated Circuit (IC)

Bandwidth (BW)

Common-Mode Rejection Ratio (CMRR)

Slew Rate (SR)

No Connection (NC)

Sum-Of-Products (SOP)

Electronic Communication System (ECS)

Amplitude Modulation (AM)

Frequency Modulation (FM)

Phase Modulation (PM)

Pulse Amplitude Modulation (PAM)

Pulse Width Modulation (PWM)

Pulse Position Modulation (PPM)

Pulse Code Modulation (PCM)

Delta Modulation (DM)

Adaptive Delta Modulation (ADM)

Signal-to-Noise Ratio (SNR)

Time-Division Multiplexing (TDM)

Frequency-Division Multiplexing (FDM)

Code-Division Multiplexing (CDM)

Wavelength-Division Multiplexing (WDM)

Radio Frequency (RF)

Public Switched Telephone Network (PSTN)

Global System for Mobile Communications (GSM)

Code Division Multiple Access (CDMA)

Long-Term Evolution (LTE)

Direct to Home (DTH)

Radio Frequency (RF)

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