

New Edition

MICROPROCESSOR AND MICROCONTROLLER

As per the TANSICHE Syllabus

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PREFACE

Welcome to the world of microprocessors and microcontrollers! In today's technological landscape, these tiny yet powerful devices play a crucial role in almost every aspect of modern life, from smartphones to industrial automation systems.

This book aims to provide a comprehensive introduction to the fundamentals and practical applications of microprocessors and microcontrollers. Whether you are a student delving into the intricacies of embedded systems or a professional looking to expand your knowledge base, this book is designed to be your guide.

Structure of the Book:

Unit 1: Introduction to Microprocessors

Unit 2: 8085 Microprocessor

Unit 3: Code conversion, BCD Arithmetic

Unit 4: Interrupts of 8085

Unit 5: Introduction to Microcontroller

Each chapter is crafted to build upon the knowledge gained from the previous one, ensuring a gradual and systematic learning experience. Real-world examples, practical insights, and hands-on exercises are included throughout to reinforce concepts and facilitate understanding.

Author

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H. PRABU

SYLLABUS

Microprocessor and Microcontroller

Unit - I

Digital Computers - Microcomputer Organization-Computer languages –Microprocessor Architecture and its operations – Microprocessor initiated operations and 8085 Bus organization – Internal Data operations and 8085 registers - Peripheral or External initiated operations.

Unit - II

8085 Microprocessor – Pinout and Signals – Functional block diagram - 8085 Instruction Set and Classifications.

Unit - III

BCD to Binary and Binary to BCD conversions - ASCII to BCD and BCD to ASCII conversions - Binary to ASCII and ASCII to Binary conversions. BCD Arithmetic - BCD addition and Subtraction -Multibyte Addition and Subtraction - Multiplication and Division.

Unit - IV

The 8085 Interrupts – RIM AND SIM instructions-8259 Programmable Interrupt Controller - Direct Memory Access (DMA) and 8257 DMA controller.

Unit - V

Introduction to Microcontroller - Microcontroller Vs Microprocessor -8051 Microcontroller architecture - 8051 pin description. Timers and Counters – Operating Modes - Control Registers. Interrupts – Interrupts in 8051 - Interrupts Control Register – Execution of interrupt.

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