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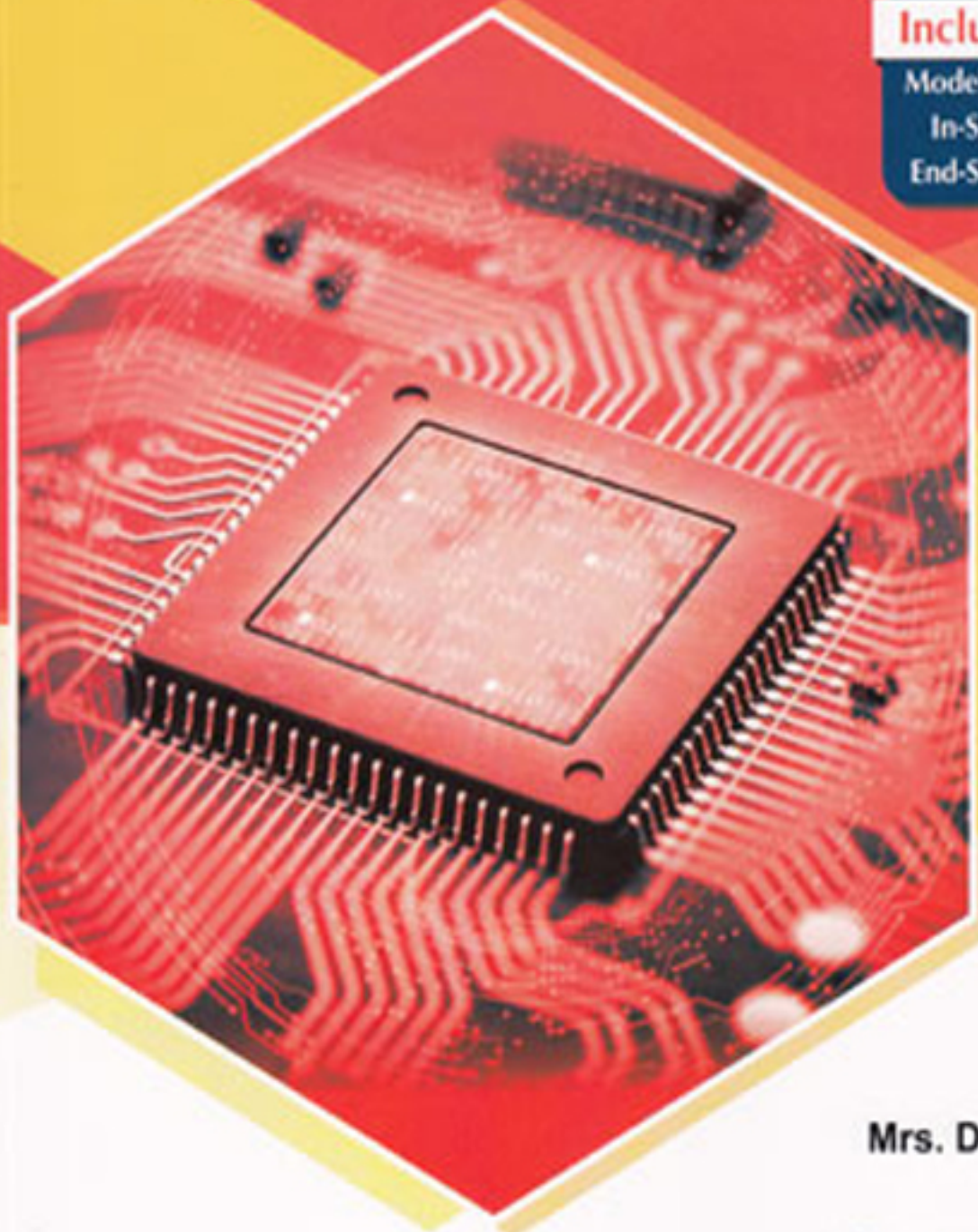

Mrs. DEEPA S. PANDIT

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A TEXT BOOK OF

ADVANCED PROCESSORS

FOR
SEMESTER – II

THIRD YEAR DEGREE COURSE IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

Strictly According to New Revised Credit System Syllabus of Savitribai Phule Pune University
(w.e.f. June 2017)

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यांच्या चरणी अर्पण

PREFACE

It gives me great pleasure to present the book **' Advanced Processor'** for the students of Third Year Degree Course in Electronics and Telecommunication Engineering of the Savitribai Phule Pune University. This book is strictly as per the **New Revised Credit System Syllabus 2015** Pattern with effect from the Academic Year (2017-18).

As per New Revised Examination Scheme which has been implemented from this academic year, In-semester assessment carries 30 marks over first three units and End Semester Examination carries 70 marks over entire syllabus out of which first three units will carry 20 marks and units 4, 5, 6 will carry 50 marks. The theory course will have 4 credits.

The book is written such that all the basic concepts are explained in simplified manner. It is presented in a more conceptual manner rather than mathematical, as required by the new examination system. It is our objective to keep the presentation systematic, consistent, intensive and clear through explanatory notes and figures.

Main feature of this book is, Complete Coverage of the New Credit System Syllabus with large number of Worked Solved Examples, Exercises, Model Question Papers of In Sem. and End Sem. Exams.

I am sure that this book will cater to all needs of students for this subject.

I also take this opportunity to express our sincere thanks to Shri. Dineshbhai Furia, Shri. Jignesh Furia, Mrs. Nirali Verma, Shri. M. P. Munde and entire team of Nirali Prakashan namely Mrs. Deepali Lachake (Co-ordinator), who really have taken keen interest and untiring efforts in publishing this text.

The advice and suggestions of my esteemed readers to improve the text are most welcomed, and will be highly appreciated.

Pune **Author**

SYLLABUS

Unit I : ARM7, ARM9, ARM11 Processors (6 Hrs)

Introduction to ARM processors and its versions, ARM7, ARM9 & ARM11 features, advantages & suitability in embedded application, registers, CPSR, SPSR, ARM and RISC design philosophy, ARM7 data flow model, programmers model, modes of operations. Introduction to Tiva TM4C123G Series Overview, Programming model, Tivaware Library

Unit II : ARM7 Based Microcontroller (6 Hrs)

ARM7 Based Microcontroller LPC2148: Features, Architecture (Block Diagram and Its Description), System Control Block (PLL and VPB divider) , Memory Map, GPIO, Pin Connect Block, timer, Instruction set, programming in assembly language

Unit III : Real World Interfacing with ARM7 Based Microcontroller-1 (6 Hrs)

Interrupt structure of LPC2148, Interfacing with LED, LCD, GLCD, KEYPAD, simple LPC2148 GPIO Programming examples Using timers of LPC2148 to generate delay, serial communication programming for transmission and reception from computer, programming for UART.

Unit IV : Real World Interfacing with ARM7 Based Microcontroller-2 (6 Hrs)

GSM and GPS module interfacing, on-chip ADC using interrupt (VIC) and without using interrupt (VIC), EEPROM using I2C, SDCARD using SPI, on-chip DAC for waveform generation.

Unit V : Digital Signal Processors –I (6 Hrs)

Introduction, Computer Architectures for signal processing, General purpose Digital signal Processors, selecting digital signal processors, Special purpose DSP Hardware, Architecture of TMS320C67X, Features of C67X processors, CPU, General purpose register files, Functional units and operation, Data paths, Control register file.

Unit VI : Digital Signal Processors-II (6Hrs)

TMS320C67X Functional units,Internal memory, External memory, on chip peripherals, Interrupts, Instruction set and addressing modes, Fixed point instructions, Floating point instructions, Conditional operations, Parallel operations, Pipeline operations, Code Composer studio, Application programs in C67X.

CONTENTS

Advanced Processors

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