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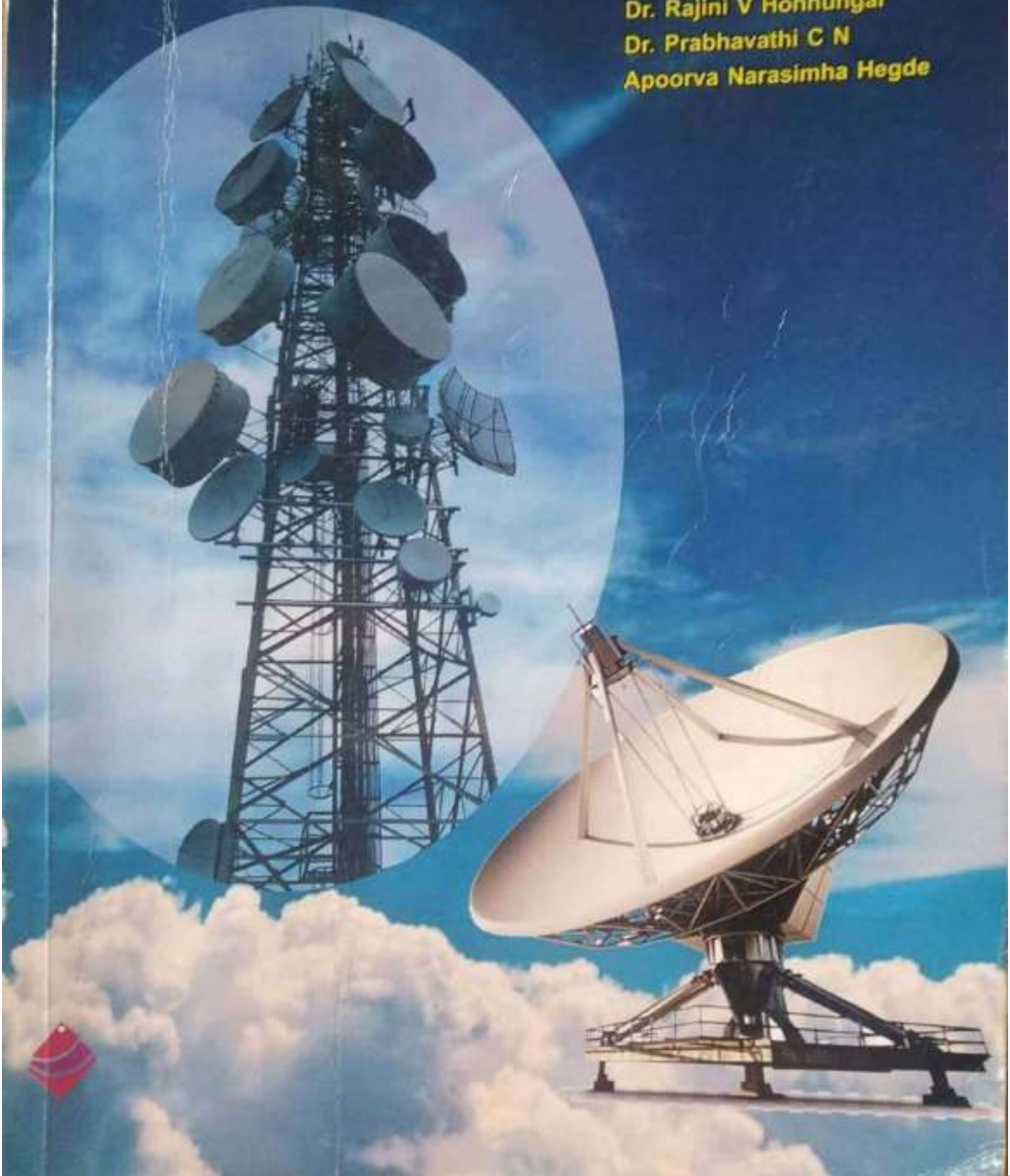

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Introduction to Microwave & Antenna Fundamentals

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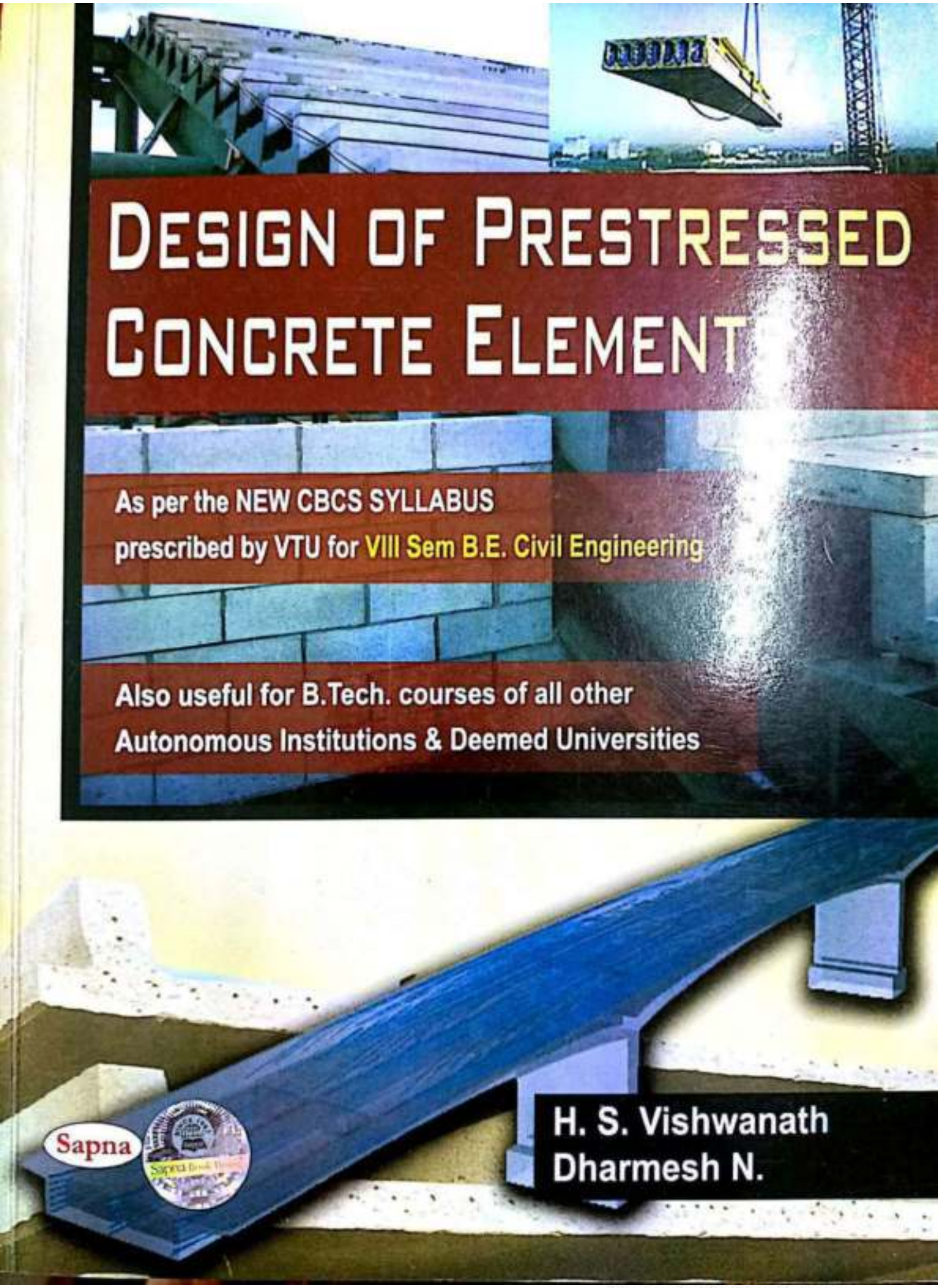

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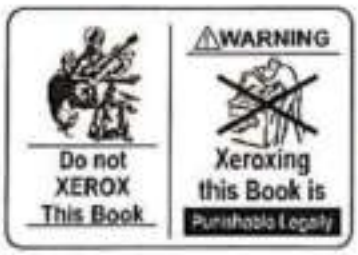

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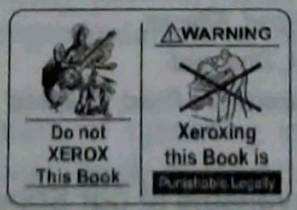

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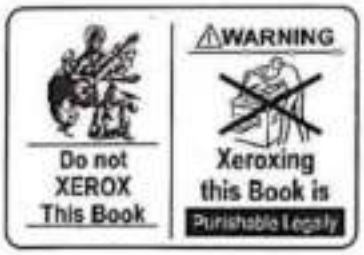

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COMPLEX ANALYSIS, PROBABILITY AND STATISTICAL METHODS

As per new Outcome Based Education (OBE) &
Choice Based Credit System (CBCS)
for FOURTH SEMESTER B.E. Classes of VTU
(Common to all Branches)

Dr. S. Padmanabhan
Dr. V. Lokesha

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COMPLEX ANALYSIS, PROBABILITY AND STATISTICAL METHODS

As per New Outcome Based Education (OBE) and Choice Based Credit System (CBCS) for the FOURTH SEMESTER B.E Classes of VTU (Common to all Branches) Also Useful for Autonomous Institutions and Other Technological Universities

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ABOUT THE BOOK

This Book **COMPLEX ANALYSIS, PROBABILITY AND STATISTICAL METHODS**, designed as a self-contained comprehensive Text material for the **Fourth SEMESTER B.E. (Common to all Branches) of VTU**, as per the New Choice Based Credit System (CBCS) and Outcome Based Education (OBE) from the academic year 2019-20. This book also caters to the need of autonomous institutions in Karnataka and other Technological Universities in the country.

HIGHLIGHTS OF THE BOOK

- Each Module is treated in systematic, logical and lucid manner.
- Easy explanation like class room, point wise in sequence.
- Step by Step working procedure for problems.
- Large number of worked examples and graded exercises with answers.
- Suggested MQP with answers.

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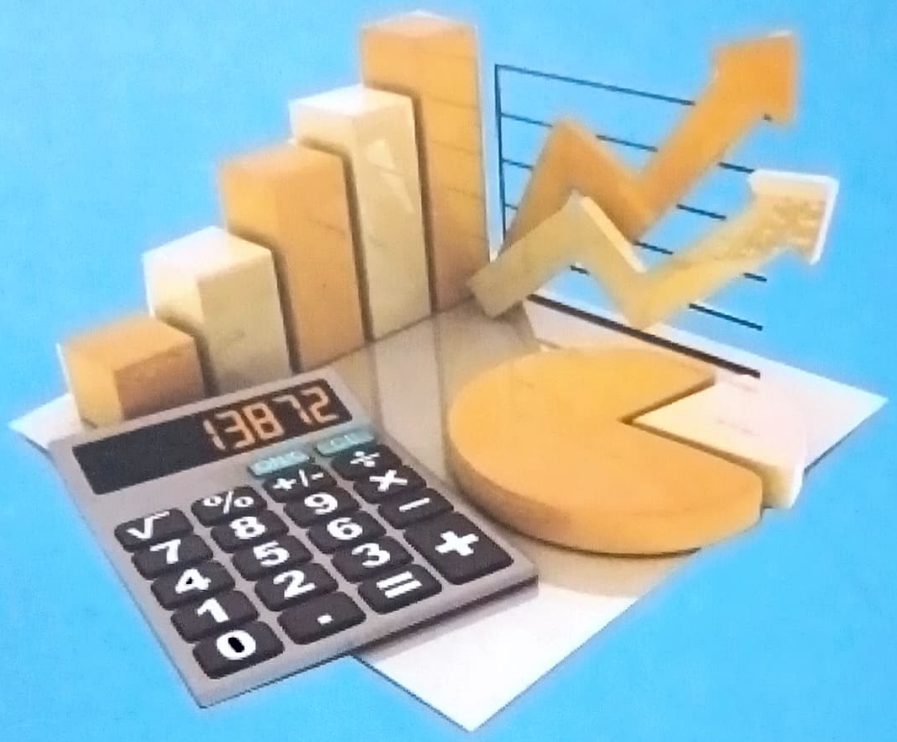

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Syllabus

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Unit-1

Financial management – Introduction to financial management, objectives of financial management – profit maximization and wealth maximization. Changing role of finance managers. Interface of Financial Management with other functional areas.

Sources of Financing: Shares, Debentures, Term loans, Lease financing, Hybrid financing, Venture Capital, Angel investing and private equity, Warrants and convertibles (Theory Only)

Emerging Issues: Risk management, Behavioral finance and Financial engineering.

Unit-2

Time value of money –Future value of single cash flow & annuity, present value of single cash flow, annuity & perpetuity. Simple interest & Compound interest, Capital recovery & loan amortization.

Unit-3

Cost of Capital Cost of capital – basic concepts. Cost of debenture capital, cost of preferential capital, cost of term loans, cost of equity capital (Dividend discounting and CAPM model) - Cost of retained earnings - Determination of Weighted average cost of capital (WACC) and Marginal cost of capital.

Unit-4

Investment decisions – Capital budgeting process, Investment evaluation techniques – Net present value, Internal rate of return, Modified internal rate of return, Profitability index, Payback period, discounted payback period, accounting rate of return.

Unit-5

Working capital management – factors influencing working capital requirements - Current asset policy and current asset finance policy- Determination of operating cycle and cash cycle - Estimation of working capital requirements of a firm (Does not include Cash, Inventory & Receivables Management)

Unit-6

Capital structure and dividend decisions – Planning the capital structure. (No capital structure theories to be covered) Leverages – Determination of operating leverage, financial leverage and total leverage. Dividend policy – Factors affecting the dividend policy - Dividend Policies- Stable Dividend, Stable Payout (No dividend theories to be covered)

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FINANCIAL MANAGEMENT

First Impression: 2020

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Preface

Financial Management or Corporate Finance is the key subject at Postgraduate in management in all the universities of the world. Financial activities are one of the most important and complex activities of a firm. Therefore in order to take care of these activities a financial manager performs all the requisite financial functions. A financial manager or Chief Financial Officer is a person who takes care of all the important financial functions of an organization. The person in charge should maintain a far sightedness in order to ensure that the funds are utilized in the most efficient manner. His actions directly affect the Profitability, growth and goodwill of the firm from fund raising to profit making. He is the active person to take decisions like Financing, Investing and Operating related activities. All the concepts and theories underlying financial management are elaborately discussed in this book with live case studies. The students pursuing MBA and executives of financial area will find this book more useful to update their knowledge about the recent trends in the area of Corporate Finance or financial management.

This book is divided into 6 units. The first unit discusses the preliminaries of financial management including financial instruments, institutions and services. Stress has been taken to explain the jargon of profit and wealth maximization concepts. In the second unit an attempt has been taken to enrich the readers with the knowledge of time value of money including the case studies on loan amortization. Sources of finance theory concept and cost of capital including case studies on weighted average cost of capital are discussed in the third unit.

Investment decisions namely capital budgeting techniques like NI, NPV, IRR, ARR, Payback and P I are explained with case studies are in fourth unit. Working capital management concepts and numerical problems with case studies were discussed in fifth unit. Capital structure including gearing and leverage concepts are crucial to understand in the present day by financial managers, dividend decisions including EPS, DPS related concepts and theories are discussed in the sixth unit.

In sum this book aims to compress a wide spectrum of financial management into a compact and readable book suitable to the needs of students of post-graduation in management and commerce. Although the authors made an attempt to cover the syllabus of the VTU in this book, but the same book can be referred by students of other universities of Karnataka.

We are very thankful to the publishers for decent and prompt work. We expect suggestions from readers in general and faculty in particular to improve in subsequent issues.

We had excellent experience with the publication of our contents and really appreciate the work of editors and publishing team Members, **Ms. N. Jayavarshenee, Director- Publications, Mr. M. Boopathy-Manager, Mrs. K. Radhika, Assistant Manager-Jayvee International Publications Private Limited,** the rapid response and excellent production. We are expecting more publications in the near future.

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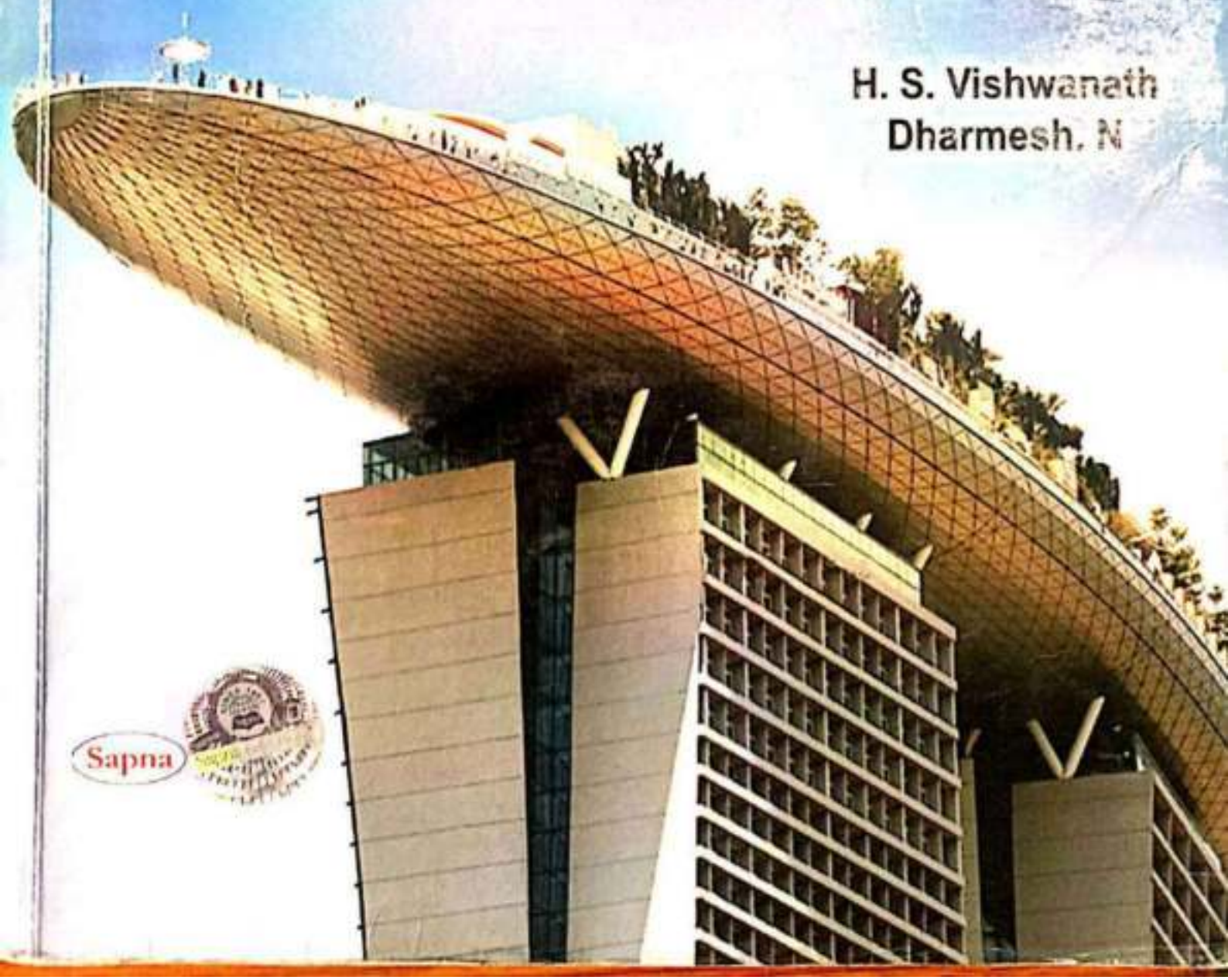

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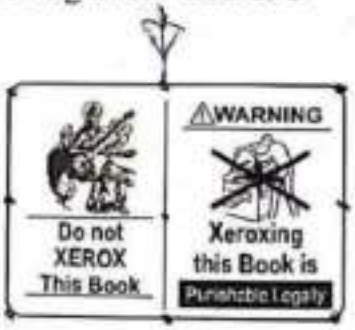

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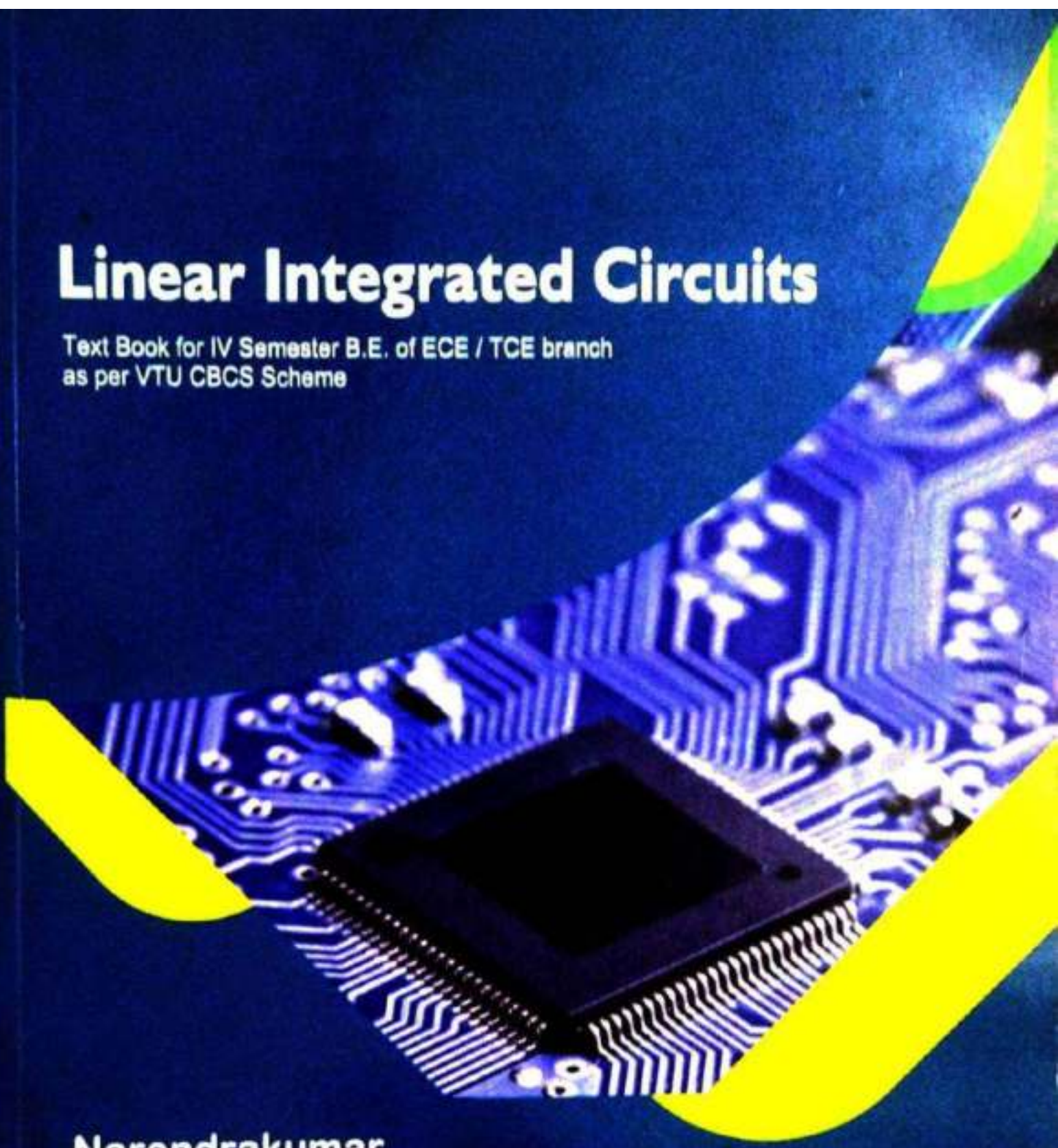

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University Question Papers

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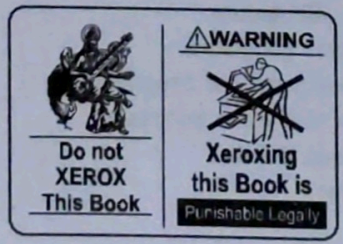

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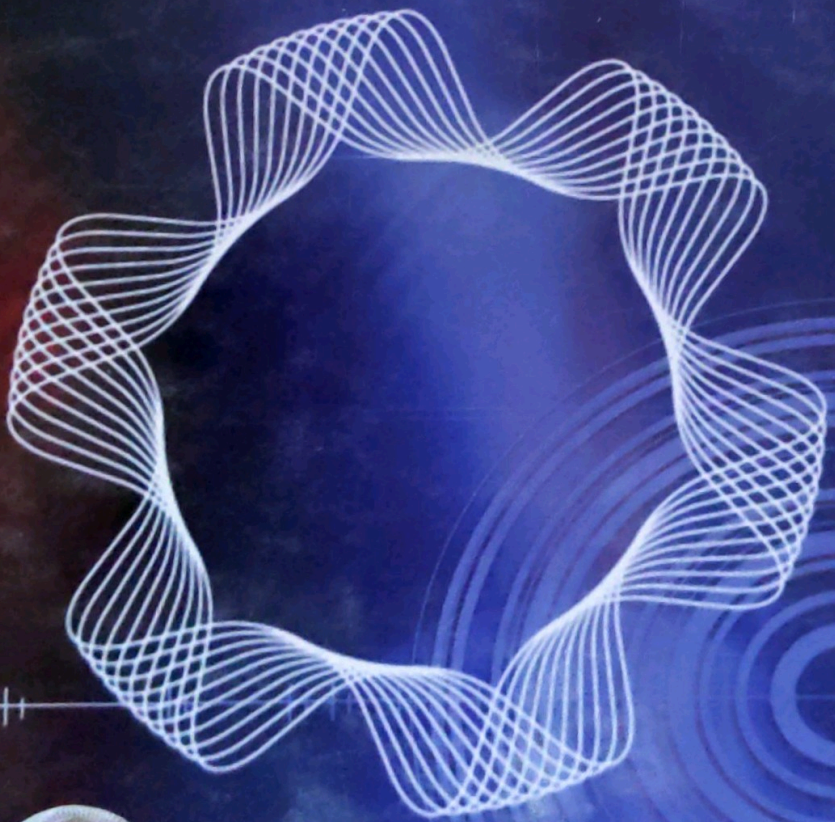

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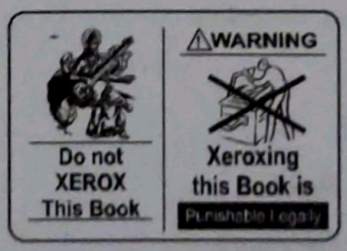

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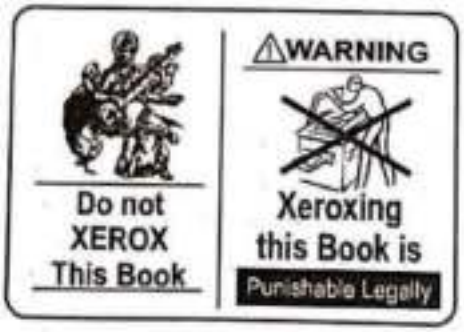

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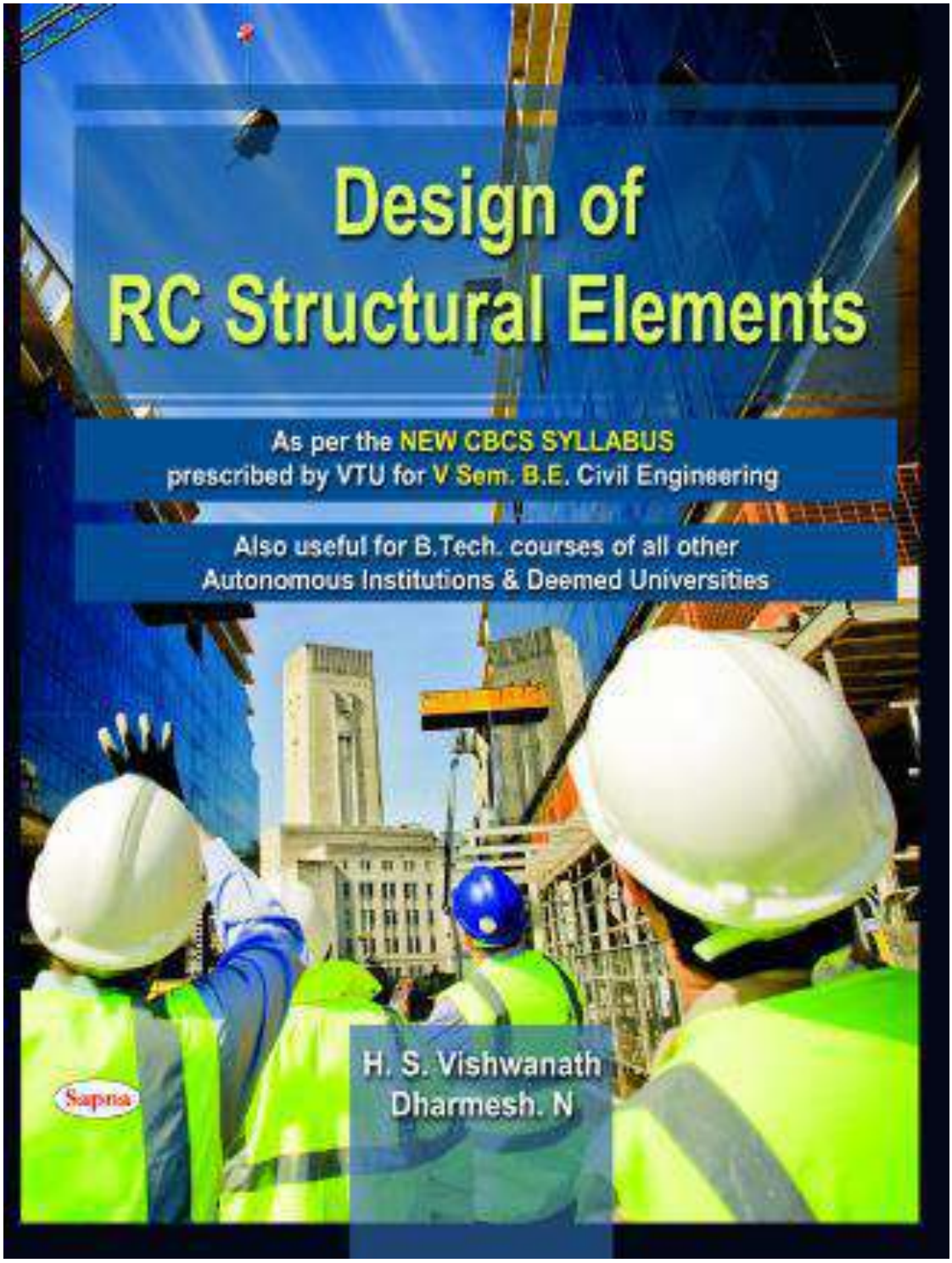
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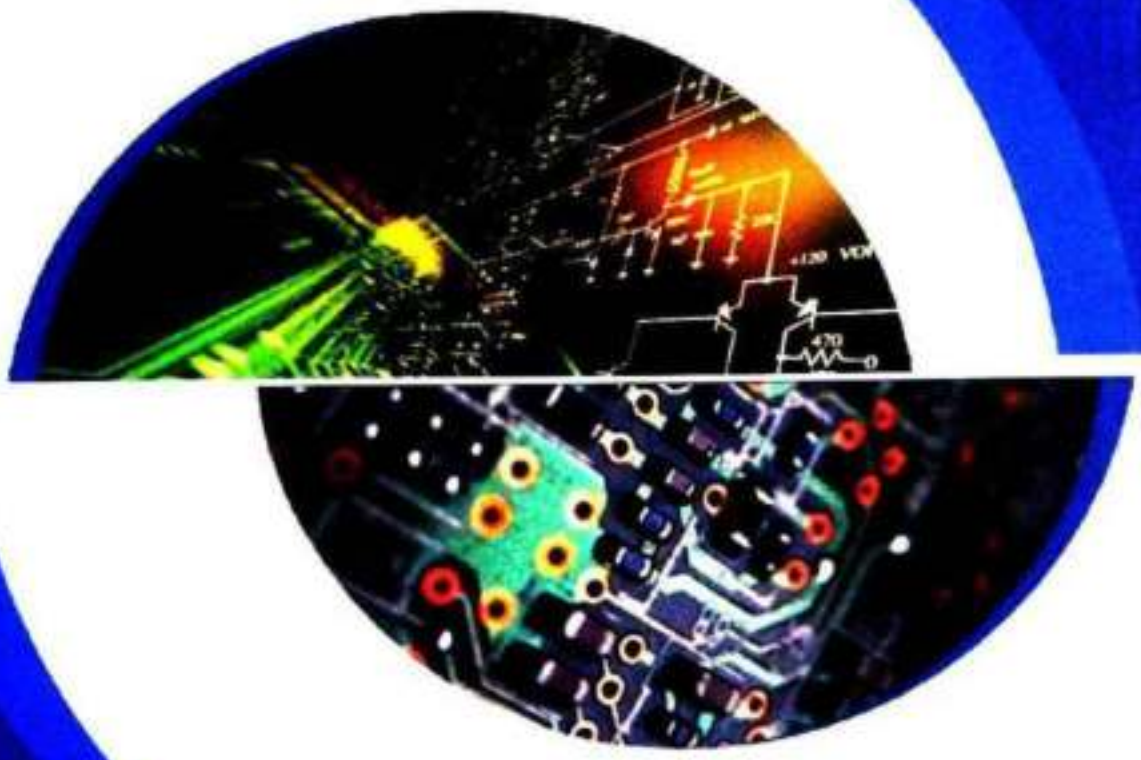

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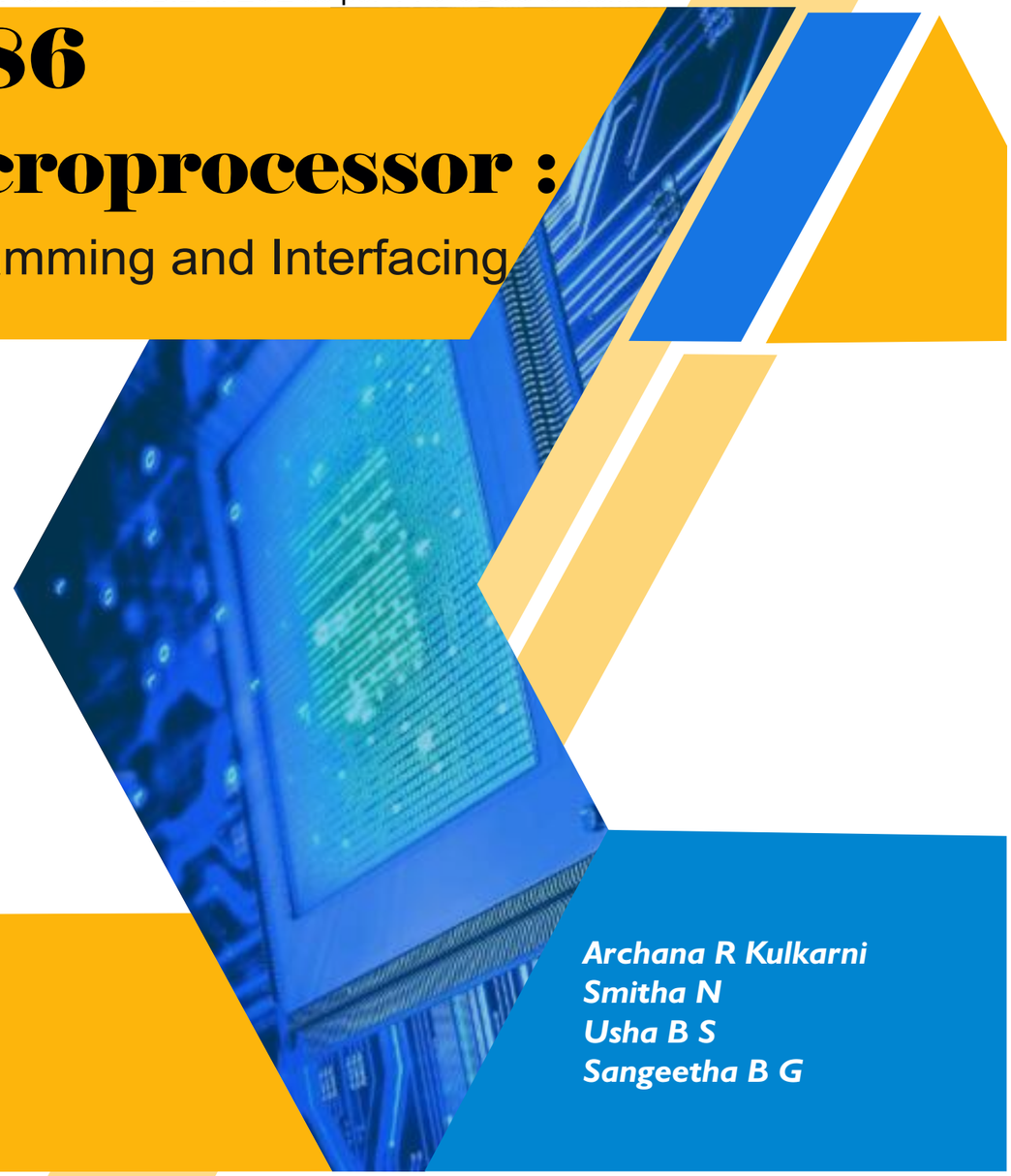

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MICROPROCESSOR 8086

Text Book for 4th Semester B.E. of ECE branch as per VTU

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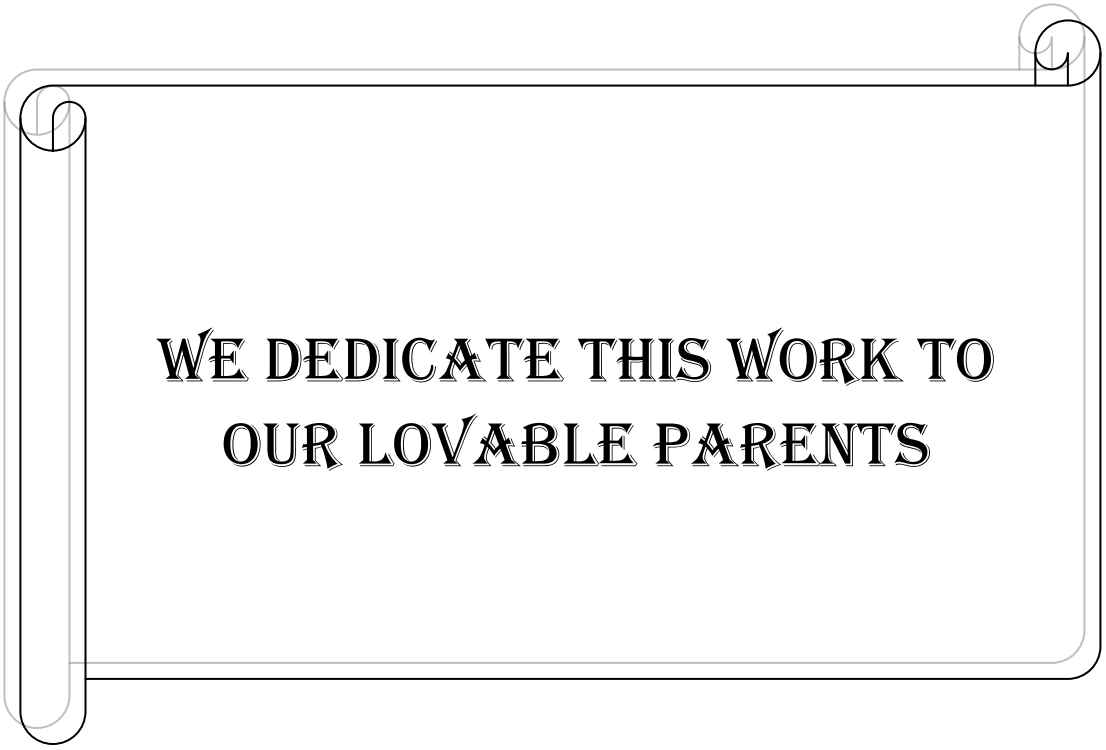
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FOREWORD

It gives me immense pleasure to write the “Foreword” to “Microprocessor 8086 text book” by Dr. Archana R Kulkarni, Prof Smitha N, Dr. Usha B S and Dr. Sangeetha B G for their effort to bring the text book which conforms to the CBCS syllabus of VTU.

This book presents architecture, programming and interfacing concepts using the Intel 8086 microprocessor. A sincere attempt has been made by the authors to bring the necessary information and guidelines in a systematic way. The concepts are supported with diagrams to clearly demonstrate the fundamentals. The programming concepts are illustrated using several examples. By encompassing the work and idea of various specialists in this field, the content has been well brought out to provide a mix balanced contents of theory and practical aspects.

The book can serve as a very useful text/reference book for students of under graduate engineering courses in educating on microprocessor 8086 to understand the fundamentals and to provide a means for involved work in practical, projects and motivate for specialization.

I recommend the book to be used by 4th semester ECE students of VTU in particular & all other university students in general for their course of “MICROPROCESSOR 8086”.

Hearty congratulations to authors of this book for their effort in bringing out this book.

Dr. H N SHIVASHANKAR

Director, RNSIT

PREFACE

The Microprocessor is the brain of any computer and has various applications in engineering fields. It is an integrated circuit (IC) which incorporates core functions of a computer's central processing unit (CPU). Microprocessor is one of the most exciting innovations in electronics since the appearance of the transistor in 1948. Microprocessors are the workhorses of modern high-assurance systems. Modern cars have dozens of microprocessors to manage critical functions such as braking, ignition, traction control, and air bags. In Aircraft, flight control, engine control, flight management, and pilot displays are microprocessor based. Medical devices, defense systems, and numerous other applications are all dependent on microprocessor control.

The microprocessors have evolved from simple 8-bit chips to 32- and 64-bit chips with specialized functional units, memory management, cache management, and so on. The system software has increased from simple interrupt handlers to full-fledged operating systems capable of supporting multiple concurrent applications with space and time partitioning. Microprocessors are applicable to a wide range of information processing tasks ranging from general computing to real time monitoring systems and Advanced Technologies like, IoT, Artificial Intelligence, Robotics, and Neural Networks so on. The microprocessors facilitate the new ways to communicate and make use of the vast information available to us. The availability of low cost, low power and small weight computing capability makes it useful in different applications.

This book is intended for 4th semester students of ECE under revised syllabus of VTU 2015 scheme. The students who are studying the subject are supposed to

learn the architecture of 8086 microprocessor and also get general information about microprocessor based control systems. The course in addition, will provide relevant knowledge of microprocessor based circuits being used in industrial process applications. The subject will deal in detail the configurations and instructional pair configuration systems and working of various peripheral interface chips. The course will cover 8086 in detail with sufficient exposure to the industrial applications. The course will also deal with the architecture, instruction sets and applications of advanced microprocessors and microcontrollers.

ACKNOWLEDGEMENTS

Authoring a book is in itself a new milestone in one's career. We are indebted to lot of people who have helped us in accomplishing this task.

We thank God almighty for this wonderful life.

First and foremost we express deepest gratitude to the Chairman of RNS Group of Companies Dr. R N Shetty for having provided an opportunity to work in RNSIT.

We are extremely grateful and blessed to thank our beloved Director Dr. H N Shivashankar the guiding force at RNSIT.

We thank from the bottom of our heart Principal Dr. M K Venkatesha for his unconditional support. We also wish to extend our gratitude to Dr.Vipula Singh HOD, ECE for her support during the period.

We would like to express utmost gratitude to Dr. Andhe Pallavi, Head EI Dept, RNSIT for reviewing few chapters and giving excellent inputs. We thank Dr. K Somashekar, Prof ECE, SJBIT for reviewing one chapter and giving valuable inputs.

We profoundly thank Prof. Narendra Kumar, Dept. of ECE, RNSIT for his suggestions during the course of book writing. It is his constant encouragement that has made this book into reality.

We thank Sunil Kumar for helping us in preparing the book.

We thank our parents, family for unconditional support in completing the book. Last but not the least we thank all our colleagues, friends and students of ECE for all their support.

Dr. Archana R Kulkarni
Prof. Smitha N
Dr. B S Usha
Dr. Sangeetha B G

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We express our heartfelt gratitude for the members of the review committee for their constructive criticism.

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Dr. Somashekar K. Professor of ECE, SJBIT, Bengaluru

Prof. Narendra kumar, ECE, RNSIT, Bengaluru

SYLLABUS

Module 1 :

8086 PROCESSOR: Historical background, 8086 CPU Architecture, Addressing modes, Machine language instruction formats, Machine coding the program

INSTRUCTION SET OF 8086: Data transfer and arithmetic instructions. Control/ Branch Instructions, Illustration of these instructions with example programs.

Module 2 :

Logical Instructions, String manipulation instructions, Flag manipulation and Processor control instructions, Illustration of these instructions with example programs. Assembler Directives and Operators, Assembly Language Programming and example programs.

Module 3 :

Stack and Interrupts:

Introduction to stack, Stack structure of 8086, Programming for Stack. Interrupts and Interrupt Service routines, Interrupt cycle of 8086, NMI, INTR, Interrupt programming, Passing parameters to procedures, Macros, Timing and Delays.

Module 4 :

8086 Bus Configuration and Timings:

Physical memory Organization, General Bus operation cycle, I/O addressing capability, Special processor activities, Minimum mode 8086 system and Timing diagrams, Maximum Mode 8086 system and Timing diagrams.

Basic Peripherals and their Interfacing with 8086 (Part 1): Static RAM Interfacing with 8086 (5.1.1), Interfacing I/O ports, PIO 8255, Modes of operation – Mode-0 and BSR Mode, Interfacing Keyboard and 7-Segment digits using 8255.

Module 5 :

Basic Peripherals and their Interfacing with 8086 (Part 2): Interfacing ADC-0808/0809, DAC-0800, Stepper Motor using 8255.

Timer 8254 – Mode- 1 and 2 and Interfacing programs for these modes.

INT 21H DOS Function calls - for handling Keyboard and Display.

Other Architectures: Architecture of 8088 and Architecture of NDP 8087.

Von-Neumann & Harvard CPU architecture and CISC & RISC CPU architecture

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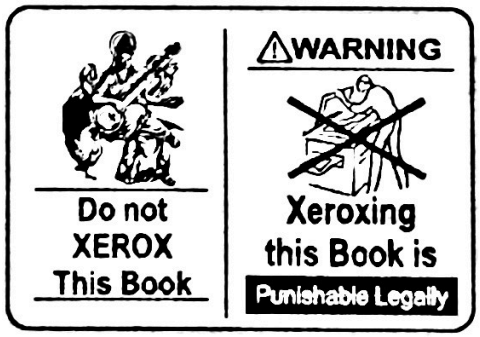

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The Book

This book **Engineering Mathematics – II**, is designed as a self-contained, comprehensive Text material forthe Second Semester B.E Classes of Visvesvaraya Technological University (VTU), on the basis of the **New CBCS Syllabus**.

Highlights of the Book

- **This Book is divided into Five modules**
- **Each module is treated in systematic, logical and lucid manner**
- **Easy Explanation like Class room, Point wise in sequence**
- **Step by step working Procedure for Problems**
- **Illustrative examples**
- **Large number of worked Examples and graded Exercises with answers**
- **List of Important Formulae**
- **Additional Information**
- **Model Question Papers**

About Authors

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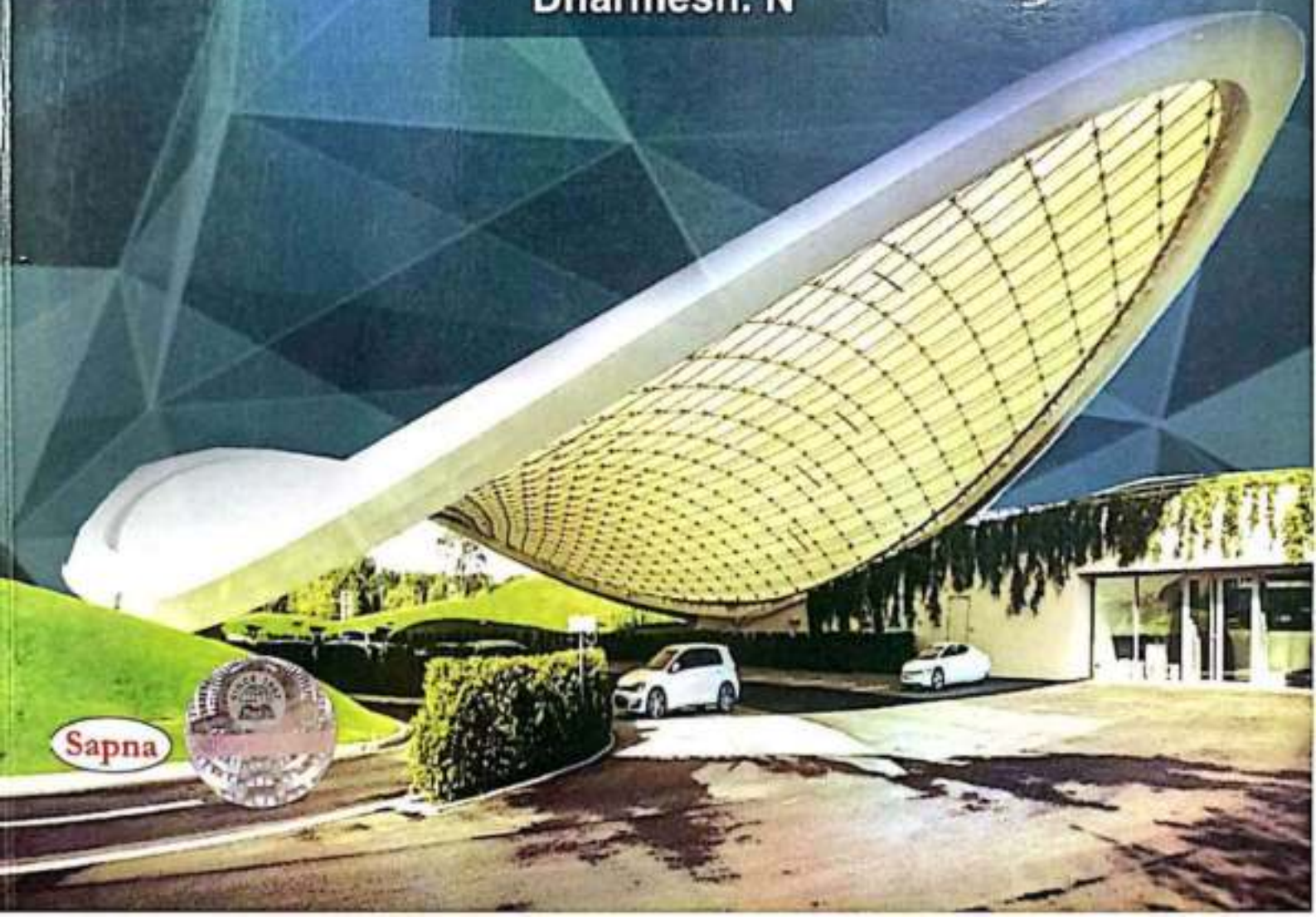

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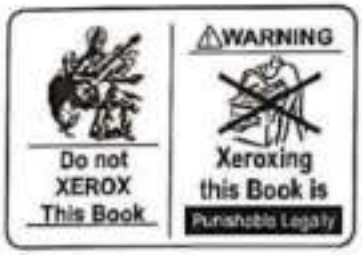

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3rd Edition

business RESEARCH METHODS

S N Murthy
U Bhojanna

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Research is the all pervasive key and the brain for decision-making in any organization. The students of today are the future decision-makers of Indian industry. When these students join the corporate world, they need to know the methodology to be adopted to conduct research, in terms of gathering data, interpretation and report-writing and also the use of statistical techniques. This book aims at covering various aspects of Business Research, such as problem formulation, data gathering, analysing, interpretation of data, report-writing, use of statistical methods, etc. In this book, the subject-matter of Business Research is included at macro and also at a micro level.

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S N MURTHY ◆ U BHOJANNA

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Success of any organization depends on the effectiveness of communication with the target audience. Therefore, companies are constantly looking for new ways to reach the customers. This has resulted in fierce competition among the brands with greater emphasis on advertising and promotion tools.

This book deals individually with various communication tools as well as how they could be combined to get optimum results. Integration is the key to success. The major factors affecting the sale of a product are advertising, sales promotion, direct marketing, public relations, personal selling, internet and event management. Equal importance has been given to each of these factors in this book.

There are 25 chapters in this book which have been organised into Six sections. The first section elaborates the concept of advertising, marketing process and the role of ad agencies. The second section highlights the purpose of communication, various aspects of creativity and tactics for print advertisement. Media planning and various types of media have been discussed in the third section. The fourth section comprises of six chapters elaborating the concept of direct marketing, sales promotion, event management, web advertising, etc. The three chapters under fifth section describe implications of advertising and regulation of advertisement. Four chapters of sixth section deal with industrial and international advertising and merchandising along with advertising art, graphics, layout and visualization.

Throughout the text, current advertisement examples on important issues are presented. This book would help the readers to understand the different aspects of advertising in a better way.

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