Preface

The developments in digital electronics and related technologies during the last few decades has ushered in the second Industrial Revolution that is popularly referred to as the Information Revolution. Computer technology plays an ever-increasing role in this new revolution. Application of computers is all pervasive in the life of everybody today. A sound knowledge of how computers work and how they process data and information has, therefore, become indispensable for anyone who seeks employment not only in the area of IT but also in any other field.

Rightly so, many institutions and universities in India have introduced a subject covering the fundamentals of computers and C programming at undergraduate and diploma levels of arts, science and engineering disciplines. This book is designed for the students taking first semester paper (ECS-201) common to all BTech courses and the first-year MCA paper in Uttar Pradesh Technical University.

Why C Language?

C is a powerful, flexible and elegantly structured programming language. It is also a machine-independent language. Since it combines the features of high-level language with the elements of the assembler, it is suitable for both systems and applications programming. **C** is undoubtedly the most popular and most widely used general-purpose language today.

Why is this Book a Winner?

This book ensures a smooth and successful transition to being a skilled C programmer. The book uses the simple-to-complex and easy-to-learn approach throughout. The concept of 'learning by example' has been stressed everywhere in the book. Each feature of the language is treated in depth followed by a complete program example to illustrate its use. Wherever necessary, concepts are explained pictorially to facilitate better understanding. The book presents a contemporary approach to programming, offering a unique combination of theory and practice.

Pedagogical Features

- Bottom-up Approach of explaining concepts
- Microsoft Office Software illustrated with screen shots
- Algorithms and Flowcharts conversed extensively
- **Codes with Comments** are provided throughout the book to illustrate the use of various features of the language.

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- Supplementary Information and Notes that complement but stand apart from the text have been included in special boxes.
- **Case Studies** at the end of the chapters illustrate common ways C features are put together and also demonstrate real-life applications.
- Just Remember section at the end of each chapter lists out helpful hints and possible problem areas.
- Review Questions provide ample opportunities to test the conceptual understanding of features.
- Programming Exercises stimulate interest to practice programming applications.

How is the book organized?

The book covers the history and different generations of computers, basic structure of computers, processors, input output devices, an overview of the operating system, and detailed coverage of MS-Word and MS-Excel in *Chapter 1. Chapter 2* explains the binary number system, logic gates and provides a brief introduction to programming languages. *Chapter 3* introduces programming in C language, which talks about the basic structure of C programs and their execution. *Chapter 4* discusses how to declare constants, variables and data types. *Chapter 5* details the input and output operations. *Chapter 6* describes the built-in operators and how to build expressions using them. Decision making and branching is discussed in *Chapter 7*, which talks about if-else, switch and goto statements. Further, decision making and looping is discussed in *Chapter 8*, which covers while, do and for loops. Arrays and ordered arrangement of data elements are important to any programming language and have been covered in chapters 8 and 10. Strings are also covered in *Chapter 10*. *Chapter 13* in the most user-friendly manner. *Chapter 14* discusses Direct Memory Allocation and Linked lists. Management of files in C is discussed in *Chapter 15*. The appendices will help readers gain an understanding of database management systems, and data structures. Lastly, the Standard C Preprocessor is discussed in *Chapter 16*.

Resources available on the Web

The McGraw-Hill Online Learning Centre of the book gives the student an opportunity to explore in greater depth the features and application of the C language. It contains links, source codes and case studies on Inventory Management Systems and Phone Book. Teaching resources for instructors include chapterwise PowerPoint slides and the Solution manual.

I look forward to receiving from teachers and students their valuable views, comments and suggestions for improvements, all of which may be sent to <u>tmh.corefeedback@gmail.com</u>. *Kindly mention the title and author name in the subject lines*.

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