

OPERATING SYSTEM CONCEPTS

for

*MCA, BCA, B.Sc. (CS) & PGDCA
(CBCS-Syllabus*)*

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Forwarding Letter

Dr. Shashiraj Teotia

Jai Hind !

I applaud the publication of your inclusionary book on **Operating System Concepts** for the BCA and MCA programs.

I believe your comprehensive work on the revised curriculum of will be a milepost in the learning of truism about various operating systems. Precious few have had the dedication to compose textbooks with immense hard work, well displayed in your piece of exemplary service to the academic world. You have inscribed your hard-won experience in this book. Howbeit, you must have done a wheelbarrow-full of research.

I appreciate the endless hours of service you dedicated to this compilation of technical concepts and entrust your book will soon be on the bestseller list.

May you enjoy this type of success in all your endeavors!

 **Dr. Shalya Raj**
Chief Executive Officer
Swami Vivekananda Subharti University
Meerut

P R E F A C E

Today, Operating System is not the word only, It is more than this. An Operating System is an Indispensable part of a computer system. A good realization of this fact is that there are various books of this subject, which gives very good knowledge about the various operating systems.

Even the “Operating System” in itself is a very vast subject which can not be comprehended in a single book. This book is an attempt to cover the syllabus of MCA, BCA, B.Sc.(Computer Science) and PGDCA.

This Book “*Operating System Concept*” is very useful book for the students of MCA, BCA, PGDCA, & B.Sc. (Computer Science). This book is based on the revised syllabus of the above course, as per the CBCS (Choice based Credit System) pattern.

 Dr. Shashiraj Teotia

ACKNOWLEDGEMENT

Jai Hind!

First and foremost, praises and thanks to the God, the Almighty, for his showers of blessings throughout my work to complete this Book successfully. I would like to express my deep and sincere gratitude to Hon'ble CEO Madam, Dr. Shalya Raj for giving the best wishes, inspiration and the opportunity to writing this book successfully. Without her support, it was not possible to me to complete this book.

I am extremely grateful to my parents for their love, prayers, caring and sacrifices for educating and preparing me for my future.

During the course of writing this book, I had a long discussion with many experts of this field on the several topics. They all deserve my sincere thanks. Without their tips, this book was not possible.

And many-many thanks to my lovable students whose queries and support in the class gave me the encouragement to write this book.

Last but not least, I would like to thank to all the people who have supported me to complete this work directly or indirectly.

 *Dr. ShashirajTeotia*

Syllabus

Unit – I: Operating System Structure: *Operating Systems and Resource Manager, Operating system classifications, simple monitor, multiprogramming, timesharing, real time systems, multiprocessor systems, operating systems services.*

Unit – II: CPU Scheduling: *Basic scheduling concepts, Process overviews, process states, multiprogramming, Schedulers, and Scheduling algorithms, multiple-processor scheduling.*

Unit – III: Memory Management: *Bare machine approach, resident monitor, Partition, Paging and segmentation, virtual memory, demand paging, Deadlocks: Deadlock Characterizations, deadlock prevention, avoidance detection and recovery.*

Unit – IV: File System: *File supports, access methods, allocation methods-contiguous linked and index allocation; directory systems single level, tree-structure, a cyclic graph and general graph directory, file protection.*

Unit – V: Resource Protections: *Mechanisms, Policies & domain of protection, Access matrix and its implementation, dynamic protection structures. Case Study of Windows-NT: Design Principle; System components, Environment subsystem; File System, Programmer Interface.*

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