

T. Y. B. C. A.

BCA -304 Operating System and Embedded Technology

Teaching Scheme (per week)		Examination Scheme					
Th. (hours)	Pr. (hours)	Internal		External		Total	
		Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
3	-	30	-	70	-	100	-

UNIT I **(18 Marks)**

Operating System Overview: **(10 Marks)**

Simple Batch System, Multi-programmed Batch System, Time Sharing System, Personal Computer System, Real Time System, Distributed System Functions of Operating System, System Call, Structure of Operating System (Monolithic, Layered, Virtual Machine, Client Server)

Scheduling: **(8 Marks)**

FCFS, SJF, Priority based, Round Robin

UNIT II **(14 Marks)**

Storage Management:

Logical versus physical address space, Swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Paged segmentation, Virtual Memory, Demand Paging, Performance of demand paging, Page replacement, Page replacement algorithms.

UNIT II **(18 Marks)**

Overview of Windows NT/2000, UNIX/LINUX Operating System:

Windows NT/2000 - Basics Of Window NT/2000, Installing NT/2000, File Management, Windows NT/2000 and hardware, Working with a network, sharing file folders and other resources, security, multitasking, DLL, OLE.

UNIX/LINUX – File system, scheduler, shell, accounts, user account, super user account, directory structure, starting the system, loading operating system, log-in, password, stopping system, listing files, creating files, displaying file contents, sorting content of file, file – copy, rename, delete, printing

Directory – displaying working directory, changing working directory, creating, removing, copying Finding files, clearing screen, file security, directory security, batch commands.

UNIT IV **(20 Marks)**

Embedded System:

An Overview of Embedded

Software: **(5 Marks)**

Definition of Embedded System, Categories of Embedded System, Requirements of Embedded System, Applications of Embedded System.

Hardware Architecture for Embedded Systems:

Embedded

fundamentals: **(10 Marks)**

Voltage and Current, Analog Signals, Power, Registers, Capacitors, RC Circuits, Inductors, Transformers, Diodes, Clocks and Oscillators, Digital Signals.

Embedded Hardware

System: (5 Marks)

Hardware Architecture, Processor, Memory, Latch & Buffers, Crystal, Reset Circuit, Watchdog timer, Chip-select logic circuit, ADC & DAC, Display Units, Keypads, Communication Interfaces, Programmable logic devices.

Case Study:

(There is no Weightage of marks in examination) Intel 8051 Microcontroller Architecture.

Ref. Book:

1. Operating System Concepts & Design – Milan Milan Kovik. TMH
2. An Embedded Software Primer – Devid E. Simon. Low Price Edition

Text Book:

1. Operating System Concepts – Silberschatz & Galvin. Addison Wesley Publication
2. Programming for Embedded System – Dreamtech Software team. Wiley Publishing
3. Designing Embedded Hardware – John Catsoulis O'Reilly-Shroff Publishers

Question Paper Scheme:

University Examination Duration : 3 Hours.

Q.1 - Unit-I (18 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.2 - Unit-II (14 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.3 - Unit-III (18 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.4 - Unit-IV (20 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Note: Options should be given in all questions.