U-I

OS services
- User Interface
- GUI
- program execution
- I/O operations
- file system manipulation
- communication
- error detection.

System programs.
- file management
- status information
- file modification
- programming language support
- program loading & execution
- communication.

scheduling
- cpu - I/o Burst cycle
- cpu scheduler
- preemptive scheduling

scheduling criteria.
- cpu utilization
- Throughput
- Turnaround time
- waiting time
- Response time.

scheduling alg:
- FCFS
- SJF
- priority
- Round Robin

functions of OS
- memory mgnt
- processor "
- device
- file
- user interface.
  - cmd line interface
  - GUI
  - Batch Interface
- Booting the computer
- security.

U-II

Critical section.

- ↳ Petersons soln.
- ↳ system h/w soln
- 3 requirements
  - ↳ mutual exclusion
  - ↳ progress
  - ↳ bounded waiting.

semaphores.

Classical problem of synchronization.

- ↳ bounded buffer problem.
- ↳ Readers - writers problem
- ↳ Dining philosophers problem.

U-III

Memory management

Memory management techniques

- contiguous / fixed size
- non-contiguous / variable size.

Free space management technique

- bitmap / bit vector
- linked list.

Paging

- page replacement (3 alg)
  - FIFO
  - LRU
  - optimal

UNIT-I

1. System calls
2. Types of system calls
   - process control
   - file management
   - Device management
   - Information maintenance
   - communications
3. process Management
3i) 4. process memory (4 sections)
   - Text
   - data
   - heap
   - stack.
3ii) 5. process control block
   - process state
   - process number
   - program counter
   - registers
   - memory limits
   - list of open files

   - CPU scheduling information.
   - memory management information
   - accounting information
   - I/O status information

3iii) process state :
   - new
   - terminated
   - ready
   - running
   - wait