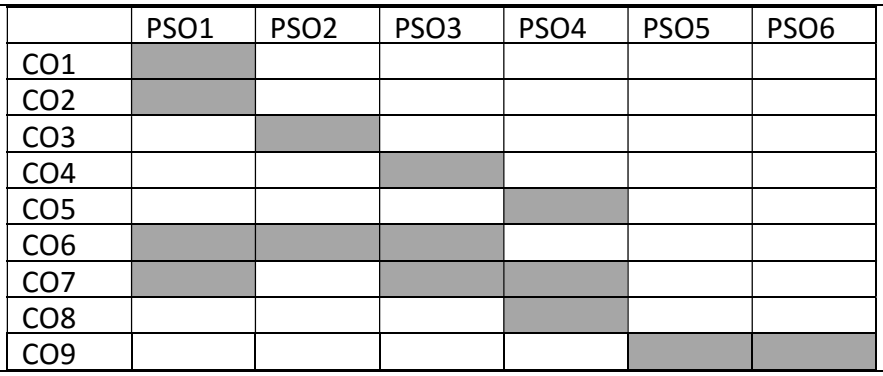
VEER NARMAD SOUTH GUJARAT UNIVERSITY – SURAT
T Y B. Sc. (Computer Science)
Syllabus for T. Y. B. Sc. Semester-VI
Effective From: June-2019
Course: 606: Operating System

Course Code	606
Course Title	Operating System
Credit	2
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June, 2019
Purpose of Course	This course imparts the knowledge of operating system concepts
Course Objective	Provide fundamental principles of operating systems design of memory, process management and its relevant Unix concepts
Pre-requisite	-
Course Out come	CO1. Explain students the insight of the evolution of operating system, the needs of operating system and types of operating system. CO2. Students will be able to understand steps of Booting process and interrupt handling. CO3. Explain implementation of different file systems to make students able to efficiently manage files and directory with any operating system. CO4. Students will be able to understand process states, process scheduling. CO5. Explain and train the students differentimplementations of theScheduling algorithm. CO6. Knowledge of process communication, deadlocks and deadlock avoidance help the students while developing Software. CO7. Knowledge of various algorithms for memory management makes the student efficiently utilize memory while developing software. CO8. Students can utilize their knowledge of device management to configure the different devices as per requirement and

	perform troubleshooting. CO9. Students will be able to select particular configuration of computer and operating system necessary for the application and perform troubleshooting when required
Mapping between COs with PSOs	
Course Content	**1. Operating System Concepts** 1.1. Evolution ofOS, Need of an Operating System, Types of OS 1.2. Booting process 1.3. Functions of OS 1.4. Interrupt and System call, Data bus and Address bus **2. I/O Device and File Management** 2.1 I/O Devices, Device controllers and drivers, DMA, Programmed I/O, Interrupt driven I/O, I/O using DMA 2.2 Disk space Management 2.3 Allocation and Disk Arm Scheduling Methods (FCFS, SSTF, SCAN, C-SCAN) 2.4 File- Structure, Attributes, Types, Access, Operations, Protection, Directory - Structures and operations. 2.5 File system management and optimization - Disk space management, backup, consistency, Performance, Defragmentation **3 Memory Management** 3.1 Address space, Contiguous and non contiguous allocation, Managing free space (Garbage collection) 3.2 Virtual memory - Paging, Page size, Page table, Page fault, Demand Paging, Page replacement algorithms (FIFO, LRU, 2nd Chance NRU Optimal) , Shared page 3.3 Segmentation - Implementation of pure segmentation, segmentation with paging. **4. Process Management** 4.1 Process, Process states, PCB, Process scheduling 4.2 Scheduling Algorithms (Round-robin, FCFS, SJF, SRTF, Priority) 4.3Overview of Inter process communication 4.4s Deadlocks - Overview of Deadlock Avoidance, Prevention and Recovery.
Reference Books	1. Operating System Concepts, James Peterson McGrawHill 2. An OS Concept ,SilberschatzAdditionWesley Publication 3. An Operating Systems, W.Stallings Pearson Education 4. Understanding Operating Systems, I.M.Flinn, A.M.Mchoes – Thomson Learning

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■					
CO3		■				
CO4			■			
CO5				■		
CO6	■	■	■			
CO7	■		■	■		
CO8				■		
CO9					■	■

	5. Operating Systems, Donovan M McGrawHill Publication 6. Operating Systems: A Design Oriented Approach, Crowley TataMcGrawHill Publication 7. Operating Systems, S. Godbole TMH. 8. OperatingSystems: DesignandImplementation,Tanenbaum &Woodhull 9. The Design of the Unix Operating System, Maurice J. Bach PHI
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment