GUJARAT TECHNOLOGICAL UNIVERSITY

Subject Name: Advanced Operating System and Management

Subject Code: 3715102
Semester: I

Type of course: M.E. Computer Engineering (IT systems and Network Security)

Prerequisite:

- Understanding of Operating Systems Management
- Resource management
- Scheduling in Operating System
- Algorithms for OS resource allocation

Rationale:

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	PA (V) ESE	PA (I)	
3	2	0	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Over view of Distributed Operating systems: architectures, Theoretical foundations	2	4
2	distributed mutual exclusion,	2	4
3	Distributed deadlock detection	2	4
4	agreement protocols	2	4
5	resource management	2	4
6	distributed file systems	2	4
7	distributed shared memory	2	4
8	distributed scheduling	2	4
9	failure recovery	2	4
10	resource security and protection	2	4
11	Configuring Services Registry settings	2	4
12	System Configuration Settings	2	4
13	Manage Users Manage the system	2	4
14	Supporting address translation (NAT)	2	6
15	Introduction to Performance Tuning	2	6
16	Maintenance and troubleshooting Introductions Microsoft Windows Vista/XP/ 2008 security.	**3**	6

Reference Books: - Advanced Concepts In Operating Systems,Singhal, TMH
- Distributed Operating Systems, Tanenbaum

Course Outcome:

After learning the course the students should be able to:

- Knowledge of Advance Operating Systems Management
- Knowledge System Resource management
- Processing Scheduling in Operating System
- Algorithms generation for OS resource allocation

List of Experiments: (with Open Ended Problems)

- Write a program that demonstrates Casual Ordering of Events
- Write a program that demonstrates Lamport's Clock Algorithm for Global Clock
- Write a program that demonstrates Vector's Clock Algorithm for Global Clock
- Write a program that demonstrates Simple Mutual Exclusion Algorithm for DME
- Write a program that demonstrates Lamport's Mutual Exclusion Algorithm for DME
- Write a program that demonstrates Ricart-Agrawala's Algorithm for DME
- Write a program that demonstrates Suzuki-Kasami Algorithm for DME
- Write a program that demonstrates Deadlocked State
- Write a program that demonstrates Centralized Deadlock Detection Algorithm
- Write a program that demonstrates Distributed Computing

Major Equipments:

- System
- Linux
- VMWare

List of Open Source Software/learning website:

- GCC
- Java