TEACHING PLAN

Subject : **Computer Science**

Paper Name and Course Code: **: Operating System**

Credit/ total no. Of classes : 4(3+1)

Theory: 45 Hours

Practical: 30 Hours

Non-Contact: 5 Hours

Lecture No.	Faculty	Topic	Mode of teaching(Experiential learning, participative learning	Teaching aid use	Assessment method
Lecture 1	Rita Sinha	Basic OS functions, resource abstraction	Classroom Teaching/slides	Computer System, LCD Projector	QUIZ
Lecture2	Rita Sinha	types of operating systems– multiprogramming systems, batch systems, time sharing systems	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture3	Rita Sinha	operating systems for personal computers & workstations	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture4	Rita Sinha	process control	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture5	Rita Sinha	real time systems	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture6	Rita Sinha	Processor and user modes, kernels	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture7	Rita Sinha	System call for Process Control fork(), exit(),wait()	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture8	Rita Sinha	System call for File Manipulation open(),read(),write(), close()	Classroom Teaching/slides	Computer System, LCD Projector	QUIZ, class work, home work
Lecture9	Rita Sinha	System call for Information Maintenance getpid(),	Classroom Teaching/slides	Computer System, LCD Projector	

		alarm(), sleep()			
Lecture10	Rita Sinha	System call for communication	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture11	Rita Sinha	System call for protection	Classroom Teaching/slides Demonstration	Computer System, LCD Projector	
Lecture12	Rita Sinha	Process Management System view of the process and resources, process abstraction	Classroom Teaching/slides Demonstration	Computer System, LCD Projector	
Lecture13	Rita Sinha	process hierarchy	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture14	Rita Sinha	threads, threading issues, thread libraries	Classroom Teaching/slides Demonstration	Computer System, LCD Projector	
Lecture15	Rita Sinha	Process Scheduling, Long-Term Scheduler, Short-Term Scheduler, Medium-Term Scheduler	Classroom Teaching/slides Demonstration	Computer System, LCD Projector	QUIZ, class work, home work
Lecture16	Rita Sinha	Context Switching	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture17	Rita Sinha	First-Come, First-Served (FCFS) Scheduling	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture18	Rita Sinha	Shortest-Job-Next (SJN) Scheduling	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture19	Rita Sinha	Priority Scheduling	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture20	Rita Sinha	Shortest Remaining Time Scheduling	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture21	Rita Sinha	Round Robin(RR) Scheduling	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture22	Rita Sinha	Multiple-Level Queues Scheduling	Classroom Teaching/slides	Computer System, LCD Projector	

Lecture23	Rita Sinha	critical section, semaphore	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture24	Rita Sinha	methods for inter-process communication	Classroom Teaching/slides Demonstration	Computer System	QUIZ, class work, home work
Lecture25	Rita Sinha	Deadlocks conditions, detection, prevention	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture26	Rita Sinha	Physical and virtual address space	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture27	Rita Sinha	memory allocation strategies –fixed and variable partitions	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture28	Rita Sinha	Paging	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture29	Rita Sinha	segmentation	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture30	Rita Sinha	Virtual memory	Classroom Teaching/slides	Computer System, LCD Projector	QUIZ, class work, home work
Lecture31	Rita Sinha	File and I/O Management	Classroom Teaching/slides Demonstration	Computer System, LCD Projector	
Lecture32	Rita Sinha	Directory structure	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture33	Rita Sinha	File operations	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture34	Rita Sinha	File allocation methods	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture35	Rita Sinha	File allocation methods	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture36	Rita Sinha	Device management	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture37	Rita Sinha	Protection and Security	Classroom Teaching/slides	Computer System, LCD	

				Projector	
Lecture38	Rita Sinha	Policy mechanism	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture39	Rita Sinha	Authentication	Classroom Teaching/slides	Computer System, LCD Projector	QUIZ
Lecture40	Rita Sinha	Internal access Authorization	Classroom Teaching/slides	Computer System, LCD Projector	
Lecture 41-45	Rita Sinha	Revision of All units	Participative+ experiential Learning Demonstration		

Practical

Practical problems given in the syllabus are to be solved and the codes are to be uploaded in github repository.

Session 1	Rita Sinha	Write a program (using *fork()* and/or *exec()* commands) where parent and child execute: a) same program, same code. b) same program, different code. c) before terminating, the parent waits for the child to finish	Demonstration	Computer System, LCD Projector	Viva
Session 2	Rita Sinha	Write a program to report behavior of Linux kernel including kernel version, CPU type and model. (CPU information)	Demonstration	Computer System	
Session 3	Rita Sinha	Write a program to report behavior of Linux kernel including information on configured memory, amount of free and used memory. (memory information)	Self learning/ Tutorial	Computer System	
Session 4	Rita Sinha	Write a program to print file details including owner access permissions, file	Self learning/ Tutorial	Computer System	Viva/ checking of experiments

		access time, where file name is given as argument.			
Session 5	Rita Sinha	Write a program to copy files using system calls	Self learning/ Tutorial	Computer System	
Session 6	Rita Sinha	Write program to implement FCFS scheduling algorithm	Self learning/ Tutorial	Computer System	
Session 7	Rita Sinha	Write program to implement Round Robin scheduling algorithm	Self learning/ Tutorial	Computer System	
Session 8	Rita Sinha	Write program to implement SJF scheduling algorithm	Self learning/ Tutorial	Computer System	
Session 9	Rita Sinha	Write program to implement nonpreemptive priority based scheduling algorithm	Self learning/ Tutorial	Computer System	
Session 10	Rita Sinha	Write program to implement preemptive priority based scheduling algorithm	Self learning/ Tutorial	Computer System	
Session 11	Rita Sinha	Write program to implement SRJF scheduling algorithm.	Self learning/ Tutorial	Computer System	
Session 12	Rita Sinha	Write program to calculate sum of n numbers using *thread* library.	Self learning/ Tutorial	Computer System	
Session 13	Rita Sinha	Write a program to implement firstfit, bestfit and worstfit allocation strategies.	Self learning/ Tutorial	Computer System	