

Department of Computer Applications National Institute of Technology-Tiruchirappalli

1. COURSE OUTLINE TEM	PLATE							
Course Title	OPERATING SYSTEMS	5						
Course Code	CAS 769	No. of Credits	3					
Department	Computer Applications	Faculty	Dr. C. Sivaraj					
Pre-requisites Course Code								
PAC-Chairman	Dr. S. Sangeetha							
Other Course Teacher(s)/Tutor(s) E-mail	<u>sivaraj@nitt.edu</u>	Telephone No.	+91-7339431431					
Course Type	Core course							
2. COURSE OVERVIEW								
Covers the classical internation	al algorithms and structures	s of operating syst	tems, including					
CPU scheduling, memory n	nanagement, and device ma	inagement. Consid	ders the unifving					
	•	•						
	stem as a collection of coo		-					
Covers topics including file	e systems, virtual memory, o	disk request sche	duling, concurrent					
processes, deadlocks, secu	urity, and integrity.							
3. COURSE OBJECTIVES								
➔ To describe the basi	c organization of computer	systems						
➔ To provide a clear u	nderstanding of operating s	system concepts.						
-			eir underlving					
To be aware of the services provided by operating systems and their underlying principles								
principles.								
\rightarrow To be introduced to various types of operating systems and their design								
perspectives.	perspectives.							
4. COURSE OUTCOMES (CO)								
\rightarrow Know the evolutions	of operating systems							
→ Understand the basic organization of computer systems								
 Know the concepts of operating system functions and structures. 								
 Understand the design issues associated with operating systems. 								
Be familiar with various types of operating systems including UNIX, Linux and windows.								
windows								

	Aligned Programme Outcome (PO)											
5. COURSE OUTCOME (CO)		РО- 2	РО- 3	РО- 4	РО- 5	РО- 6	РО- 7	РО- 8	РО- 9	PO- 10	PO- 11	PO- 12
Know the evolutions of operating systems	н	м				м				н		
Understand the basic organization of computer systems	М	М			Н							
Know the concepts of operating system functions and structures.	Н	L	Н	М				L	Н		М	
Understand the design issues associated with operating systems	Н	М	L	L	М		М					
Be familiar with various types of operating systems including UNIX, Linux and windows		L			н			н	н		L	н

6. COU	6. COURSE TEACHING AND LEARNING ACTIVITIES						
Week	#Class	Торіс	Mode of Delivery				
	Class I	Operating System concepts and basics	Talk, Chalk				
1	Class II	Structure of operating system	Talk, Chalk				
	Class III	OS Services and User interface	Talk, Chalk				
	Class I	System calls and its types	Power point presentation				
2	Class II	Process concepts and operations	Power point presentation				
	Class III	Cooperating processes and introduction of Inter Process Communication	Power point presentation				
	Class I	Types of IPC methods: Shared-memory Systems and Message-passing systems	Power point presentation				
3	Class II	Process scheduling basics CPU scheduler and scheduling criteria	Power point presentation				
	Class III	Various process scheduling algorithms (FCFS, SJF, Priority)	Talk, Chalk, Power point presentation				
	Class IV	Various process scheduling algorithms contd (RR, multilevel Q, multilevel feedback Q)	Talk, Chalk, Power point presentation				

Class I Thread concepts and Multi-Threading Models Talk, Chalk, 4 Class II Process synchronization and Critical section problem, Peterson's solution Talk, Chalk, Power point presentation Class II Synchronization Hardware : TestAndSet and Swap HW instructions based solutions Talk, Chalk, Power point presentation Class II Semaphores: Binary and counting Semaphores usage and implementation, deadlocks and starvation, priority inversion Talk, Chalk, Power point presentation 5 Class II Classic problems of synchronization (Bounded Buffer, Reader-Writer and Dining Philosophers) Talk, Chalk, Power point presentation 5 Class IV Deadlock Prevention, Deadlock Acoidance Talk, Chalk 6 Class IV Deadlock Prevention, Deadlock Recovery. Talk, Chalk 6 Class II Contiguous and non- contiguous memory allocation methods Talk, Chalk, Power point presentation 7 Class II Contiguous and non- contiguous memory aliging Talk, Chalk, Power point presentation 7 Class II Contiguous and non- contiguous memory aliging Talk, Chalk, Power point presentation 7 Class II Contiguous, and non- contiguous memory aliging Talk, Chalk, Power point presentation <				
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S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Test 1	4 th week	60 Minutes	20%
2	Test 2	8 th week	60 Minutes	20%
3	Assignment/Seminar	7 th week to 10 th Week	6 days	10%
4	Semester Exam	November	180 Minutes	50%
			and the second states and the second states the test	50 %
	ITIAL READINGS : Textbo			
I. Abran	am Silberschatz, Peter B. G	alvin and Greg Gagne, "C	perating System	Concepts
	tials", John Wiley & Sons In			
2. Andre	w S. Tanenbaum, "Modern	Operating Systems", 3rd	Edition, Prentice	Hall, 2007.
	m Stallings, "Operating Sys	stems: Internals and Desig	n Principles", 7tl	n Edition,
	ce Hall, 2011.			
4. Garry	Nutt, "Operating Systems",	, 3rd Edition, Addison-We	sley, 2003.	
9. COURS	SE EXIT SURVEY (mention	n the ways in which the	foodback about	the course is
assessed	and indicate the attainme	ent also)	leeuback about	the course is
	idents through the class rep		at any time to the	COURSO
coordin	ator which will be duly addr	ressed	at any time to the	course
	idents may also give their fe		mittee meeting	
3. 'Course	e Outcome Survey' form will	be distributed on the last	working day to a	all the students
and the	e feedback on various rubrid	cs will be analyzed.	in onlining day to a	
	Os will be computed after an			
10. COUF	RSE POLICY (including pla	agiarism, academic hone	esty, attendance	e, etc.)
At classe				
Interactive	e and productive interaction	s are anticipated. Abusive	terms are highly	restricted.
Attendanc	e is noted for every class. A	Appreciate if they are willir	ng to prepare for	placement and
	ng social services after info	rming properly to the depa	artment.	
Exam Pol				
Absortage	e equal to all the students.	No privileges will be given	to any one at an	iy cost.
mandator	s on cycle tests won't be all y and should be submitted b	owed for end semester ex	aminations. Ass	gnments are
Rasic Pol	licies on dishonest or Mis	sonduct:	eacher.	
	are encouraged to come wit		and to note dow	n from tooobara
lecture As	sked to avoid electronic gac	daets and unwanted notes	at the time of ex	aminations
Copving a	ind re using existing notes f	or assignments are not ar	preciable	ammations.
11. ADDIT	TIONAL COURSE INFORM	IATION		
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appointme		and at any time with them	active member w	
the state of the s	te's Consideration	and the second		
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