

SYMBIOSIS INTERNATIONAL (DEEMED UNIVERSITY)

(Established under section 3 of the UGC Act, 1956)

Re-accredited by NAAC with 'A++' Grade | Awarded Category - I by UGC

Founder: Prof. Dr. S. B. Mujumdar, M. Sc., Ph. D. (Awarded Padma Bhushan and Padma Shri by President of India)

Course Name: Operating Systems

Course Code: T7998
Faculty: Engineering

Course Credit: 4
Course Level: 2

Sub-Committee (Specialization): Computer Science

Learning Objectives:

The students are able to:

Demonstrate the understanding of fundamental Operating Systems concepts.

Understand the concept of process and thread management and apply the CPU scheduling algorithm to solve problems.

Explain and apply the concept of process synchronization, mutual exclusion and the deadlock.

Discuss various memory management techniques and apply memory page replacement algorithms to solve problems.

Understanding of the concepts of file management by Operating System.

Discuss the management of I/O devices by Operating System.

Books Recommended:

Book	Author	Publisher
Modern Operating System, 4th Edition.	Andrew S. Tanenbaum & Herbert Bos	Pearson, ISBN-13: 9780133592221
Operating System Concepts, 9th Edition.	Abraham Silberschatz, Peter Baer Galvin and Greg Gagne	WILEY, ISBN 978-1-118-06333-0
Operating System: Internals and Design Principles, 8th Edition.	William Stallings	Prentice Hall, ISBN-10: 0-13-380591-3, ISBN-13: 978-0-13-380591-8
Operating Systems, 2nd Edition, October 2005	A Godbole	by Tata Mc Graw Hill, ISBN: 9780070591134.
The Design of the Unix Operating System,1st Edition	Maurice J. Bach	Prentice Hall ISBN: 0-13-201799-7.

Course Outline:

Sr. No.	Торіс	Actual Teaching Hours	Contact Hours Equivale nce
1	Introduction to Operating System:	10	10
	Introduction and need of an operating system		
	evolution of operating system		
	layered architecture/logical structure of an operating system		
	OS services		
	type of OS		
	introduction to UNIX OS		
2	Processes and Process Management:	10	10
	Process concept and process states		
	CPU and I/O bound		
	operating system services for process and thread management		

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i	heduling algorithms- FCFS, SJFS,		
RR	nortest remaining time		
	ority scheduling		
1.	ultilevel feedback queue.		
	ter-process Communication and Synchronization, Deadlocks:	12	12
1	roduction to message passing	12	12
	ce condition		
i	tical section problem		
i	utual exclusion with busy waiting- disabling interrupts		
	terson's solution		
	SL instructions		
' - '			
i	sy waiting		
i	eep and wake up calls		
i	maphore onitors		
i	assical epic problems		
i	eadlock- system model		
i	source types		
	adlock problem		
	adlock characterization		
l l	ethods for deadlock handling		
i	adlock prevention		
	adlock avoidance		
	adlock detection		
	covery from deadlock emory Management:	12	12
i	sic hardware and issues	12	12
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	C-scan schedule Total	60	60
	scan scheduling		
	disk scheduling algorithm- FCFS, SSTF		
	disk storage capacity		
	disk attachment		
	Disk structure & operations		
6	I/O Systems:	8	8
	directory operations		
	path name		
	file sharing		

Pre Requisites:

None.

Evaluation:

Assignment Seminar Quiz

Examination

Pedagogy:

Classroom teaching Buddy session Worksheets Seminar

Expert:

Amit C. Kale,NA,NA