Ahmedabad University

School of Engineering and Applied Science

BTech (ICT), Semester – V

Course Code: CSC341M

Course Title: Operating Systems Lab

COURSE OUTLINE

Faculty Name	Sanjay Chaudhary			Sections	1
Contact	sanjay.chaudhary@ahduni.edu.in	Office Hours	Monday – Tuesday: 14:00 – 15:00		
School	School of Engineering and Applied Science				
Semester	Monsoon			Credits	3
Lab time & Weekdays	Monday and Tuesday: 14:00 – 17:00	Location	Building & room no.: 215		
Pre-requisites	Object-Oriented Programming, Data Structures and Algorithm, Computer Organization				
Course Description	It is a foundation course for 'Information and Communication Technology (ICT)' stream to provide hands-on sessions to realize basic concepts and internals of modern operating systems.				
Course Abstract *	Each student will write shell scripts to learn shell programming. Each student will write, execute and debug c programs written to implement functional aspects of process management, inter-process communications, and memory management. Students will work in the form of projects teams and each team will develop one module written and tested thoroughly in c program to implement one of the core functionalities of Operation Systems, i.e. process management, memory management, concurrency, virtual memory, and I/O management.				
Course Objectives	• To teach shell programming and system programming • To explain how computer systems manage, interpret, and execute applications				
Learning Outcomes	At the end of the course, student will • Be able to learn the relationships between computer architecture and system software • Be able to learn the concepts of computing as service and APIs • Be able to see the relationship between the stand-alone system software (traditional OS) and network software (distributed OS or network protocol suite) • Be able to learn practical hands-on experience in designing and implementing stand-alone and networked software using low-level system constructs • Be able to learn the concepts and methods in designing various types of system software, how computer systems really work • Be prepared for technical elective courses: Cloud Computing, Advanced Networks				
Pedagogy *	Hands-on sessions, write and execute shell and c programs to implement system level programming, and group projects				
Expectations	• Write, test, debug, and execute shell and system programs on individual basis				

from Students *	• Design and develop one group project in c language to implement one of the core functionalities of Operation Systems
Assessment / Evaluation	• Lab Assignments 40% • Project Work 50% • Viva-voce 10%
Attendance Policy	80%
Project / Assignment Details *	Each student will write shell scripts and c programs to understand System Programming. Students will work in the form of projects teams and each team will develop one module written and tested thoroughly in c program to implement one of the core functionalities of Operation Systems.
Course Material	• UNIX System Programming, by Keith Haviland, Dina Gray, Ben Salama, 2nd Edition, Addison-Wesley, ISBN-13: 978-0201877588, 1998 • Advanced Programming in Unix Environment, Stevens R., 3rd edition, PHI, ISBN-13: 978-0321637734, 2013 • Unix Network Programming, Stevens R., PHI, ISBN-13: 978-0139498763 • Linux Kernel Development, by Robert Love, Pearson Education, ISBN-13: 978-8131758182, 2010 • Unix Programming Environment, by Rob Pike, Prentice Hall India Learning Private Limited, ISBN-13: 978-9332550254 2015 • Unix Internals: The New Frontiers, Uresh Vahalia, Pearson Education
Additional Information *	It is offered as a core course for BTech (ICT) programme, semester – V.

* These are optional fields.

Session Plan

Topic Title	Session No.	Topic & Subtopic Details	Readings, Cases, etc.	Activities	Important Dates
Unix System	1.	Unix Commands			
Unix System	2.	Unix Commands: Advanced level and Shell Programming			
Shell Programming	3.	Lab Assignment – I			
Shell Programming	4.	Lab Assignment – II			
Process Management	5.	System Calls			
Inter-process communication	6.	Lab Assignment – III			
Inter-process communication	7.	Lab Assignment – IV			
Project teaming, project definition	8.	Project proposal submission and feedback			
Project Work	9.	Project development			

	10.	Project development and review – I			
	11.	Project development			
	12.	Project development			
	13.	Project development			
	14.	Project Work evaluation, presentation and viva-voce			