Course Code	CSE 131
Course Name	Systems Management
Credits	4
Course Offered to	UG - First year
Course Description	This course exposes the students to how a computer functions, and how they can manage their own systems. Starting with an Operating Systems installation, dual-OS installation and OS installation on a virtual machine, to knowing Linux commands, writing shell scripts, using tools such as sed and awk, connecting the machine to the network, setting up WiFi, understanding networking, setting up a website, use of Internet tools, cloud based systems, the course covers a vast ground.

Pre-requisites

Pre-requisite (Mandatory)	Pre-requisite (Desirable)
none	None

*Please insert more rows if required

Post Conditions

CO1	CO2	CO3	CO4	CO5
Students are able to identify important components of a PC and how they are connected and how data flows between components.	Students are able to configure and manage a PC, including installing multiple OSs, other softwares, virtualization, taking backups, configuring security and networking parameters.	Students able to use Command-line-interface of a Linux machine, write shell scripts, use regular expressions, and use tools like sed and awk.	Students are able to set up a WiFi network, connect devices to network, set up DHCP, use of wireshark to monitor networks.	Students are able to set up a website, and use a basic cloud computing service.

Weekly Lecture Plan

Week Number	Lecture Topic	COs Met	Labs
Week 1-2	System Design and functioning of Computing systems	CO1, CO2	Opening of a PC/Laptop and learning of different parts and their connections. Installing OS, Dual-boot, Virtualization.
Week 3	Linux OS, Shell, Command line interface, Pipe, Redirection	CO2, CO3	Use of Linux commands
Week 4-5	Shell scripting, Regular Expressions, Use of tools like sed/awk,	CO3	Solving simple problems through shell scripts and writing small awk programs.
Week 6	Functions of an Operating System - Disk scheduling, Memory Management, Process scheduling, etc.	CO2	

Week 7-8	Networking concepts, layered architecture, LAN, TCP/IP, Subnetting, Routing	CO4	Use of network tools like ping, traceroute, nslookup. Setting up of DHCP, DNS, etc.
Week 9	Website design, and setting up of a webserver	CO5	Designing of a website, and setting up of apache server.
Week 10-11	Security of computer system and computer networks, malware, virus, DOS attacks, firewall, authentication, IDS/IPS	CO2, CO4	Configuration of machines from the security perspective. Setting up of home network.
Week 12	Cloud Computing using Amazon's AWS	CO5	Setting up of cloud service.
Week 13	Internet services like github	CO5	

Weekly Lab Plan

Week Number	Laboratory Exercise	COs Met	Platform (Hardware/Software)

*Please insert more rows if required

Assessment Plan

Type of Evaluation	% Contribution in Grade
Quiz	15
Mid-sem exam	10
End-sem exam	20
Weekly Labs	20
Lab - Midsem	5
Lab - Endsem	10
Assignment	5
Creative Session (Video making)	5
Self Website/Web server installation	10

Resource Material

Type	Title

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