11-12	Cover Design: Design layout, decompose into geometric primitives.
13	Cover Design (contd.): Layers, levels, multilingual layout.
14	Publish: Export, store.
15	Publish (contd.): Print.

Assessment Methods

- Unit-wise assignments, presentations, viva, quiz as announced by the instructor in the class.
- Internal assessment
- End semester exam

Keywords

Skeleton, layout, transform

System Administration and Maintenance
(BACS10A)
Skill-Enhancement Elective Course - (SEC-4A) Credit:4

Course Objective

The course focuses on administration of operating systems(windows, linux/unix), installation and maintenance. The students will also learn the difference between desktop based and server based operating system.

Course Learning Outcomes

On successful completion of the course, a student will be able to:

1. distinguish between features of Linux/Unix and windows operating system.
2. install/uninstall hardware and software.
3. configure system environment.
4. troubleshoot network connectivity issues.
5. examine system performance issues.
6. examine file structure and properties.

Unit 1

Introduction to Operating system: Basics of operating system, services, features and functions of different operating systems, Kernel, API, CLI, GUI, devices and device drivers, IPv4, IPv6.

Unit 2

Exploring different Operating Systems: Introduction to Linux/Unix based operating systems, introduction to Windows based operating systems, difference between Linux/Unix and other

operating systems, introduction to server based operating systems, difference between desktop based (Windows 10) and server based operating systems like Windows server 2003/2008.

Unit 3

Linux/Ubuntu System Environment: Configuring desktop environment and desktop settings, installing and configuring software and hardware, exploring file structure, terminal, shell, basic Unix Commands like cat, ls, cd, date, cal, man, echo, pwd, mkdir, rm, rmdirps, kill etc.

Unit 4

Windows System Environment: Configuring desktop environment and desktop settings, installing and configuring software and hardware, explore system configuration using control panel, creating users, add/ delete users, difference between workgroup and domain, concept of user profiles – creating and roaming, concept of Active Directory, process and disk management, Windows task manager, exploring file structure and file properties, backup and recovery.

Unit 5

Network Administration : Examine network settings using commands like ipconfig/ifconfig, hostname, net, netstat, whoami etc., troubleshoot network connectivity issues using commands like: ipconfig, ping, tracert, route etc., sharing resources (files, printers etc.) on the network, accessing a system remotely using remote desktop.

Practical

Practicals based on System Administration and Maintenance

1. Installation of LINUX operating system.
2. Installation of WINDOWS operating system
3. Installation of office productivity software (MS Office/ Open Office) .
4. User Management
    a. Graphical tools
    b. Command line tools include commands like useradd, userdel, passwd, etc.
    c. Edit the local configuration files directly using vi editor.
5. Directory management commands
    a. Write a syntax and usage the directory management commands with all options.
        i. Ls command
        ii. cd command
        iii. pwd command
        iv. mkdir command
        v. rmkdir command
6. Process management commands and their execution.
    a. Ps
    b. Kill
    c. nice
7. Study the Firewall Configuration in Windows in detail.
8. Study the Firewall Configuration in Linux.
9. Study the Networks tools like ipconfig/ifconfig, netstat, whoami , trace route , Ping etc.
10. Start-up and shutdown scripts on Linux

References

1. Panek, W., & Wentworth, T. (2010). *Mastering Windows 7 administration*. Wiley Publishing Inc.
2. Snyder, G., Hein, T. R., & EviNemeth, B. W. (2018). *UNIX and Linux System Administration Handbook* (Fifth edition). Pearson.
3. Sobell, M.S. (2014). *A Practical Guide to Ubuntu Linux* (Fourth edition). Prentice Hall.

Additional Resources

1. Burges, M. (2003). *Principles of Network and System Administration*. John Wiley & sons Ltd.
2. Limoncelli, T.A., Hogan, C., & Chalup, S. R. (2007). *The Practice of System and Network Administration*. Addison-Wesley.

Teaching Learning Process

- Talk and chalk method
- Computer based presentations by teachers to explain certain topics.
- Group Discussions
- Assignments
- Offline and online Quiz
- Presentations by group of students for enhanced learning.

Tentative weekly teaching plan is as follows:

Week	Topics
1	Introduction to Operating system: Basics of operating system, services, features and functions of different operating system.
2	Introduction to Operating system (contd.): Kernel, API, CLI, GUI, devices and device drivers, IPv4, IPv6.
3	Exploring different Operating systems: Introduction to Linux/Unix based operating systems, introduction to Windows based operating systems, difference between Linux/Unix and other operating systems.
4	Exploring different Operating systems (contd.): Introduction to desktop based and server based operating systems.
5	Linux/Ubuntu system environment: Linux desktop tour, configuring desktop environment and desktop settings.
6	Linux/Ubuntu system environment (contd.): Installing and configuring software and hardware, exploring file structure.
7	Linux/Ubuntu system environment (contd.): Terminal, shell, basic Unix commands like cat, ls, cd, date, cal, man, echo, pwd, mkdir, rm, rmdir ps, kill etc.
8	Windows system environment: Windows desktop tour, configuring desktop environment and desktop settings, installing and configuring software and hardware.
9	Windows system environment (contd.): Explore system configuration using control panel, creating users, add/ delete users, difference between workgroup and domain.
10	Windows system environment (contd.): Concept of user profiles – creating and roaming, concept of active directory, process and disk management.
11	Windows system environment (contd.): Windows task manager, exploring file structure and file properties, backup and recovery.
12	Network Administration: Examine network settings using commands like ipconfig/ifconfig, hostname, net, netstat, whoami etc.,

13	Network Administration (contd.): Troubleshoot network connectivity issues using commands like: ipconfig, ping, tracert, route etc.
14-15	Network Administration (contd.): Sharing resources (files, printers etc.) on the network, Accessing a system remotely using remote desktop.

Assessment Methods

- Unit-wise assignments, presentations, viva, quiz as announced by the instructor in the class.
- Internal assessment
- End semester exam

Keywords
Desktop Operating system, Server Operating system, Shell, Network Administration.

Android Programming
(BACS10B)
Skill-Enhancement Elective Course - (SEC-4B) Credit:4

Course Objective

The course is designed for students to help them learn how to develop android apps. They will also learn android architecture and key principles underlying the design.

Course Learning Outcomes

On successful completion of this course, a student will be able to:

1. describe various components of an Android application.
2. design user interfaces using various widgets, dialog boxes, menus.
3. design and implement interaction among various activities/applications using intents.
4. develop application(s) that require database handling.

Unit 1

Introduction: Overview of Java programming, Android architecture, Android components including activities, view and view group, services, content providers, broadcast receivers, intents, parcels, instance state. Android development tools like Android virtual device manager, Android SDK manager, Android emulator, Android profiler, Android debug bridge.

Unit 2

User Interface Architecture: application context, intents: explicit intents, returning results from activities, implicit intents, intent filter, intent resolution, and applications of implicit intents, activity life cycle, activity stack, application's priority and the process' states.

Unit 3