

BCA II Year IV Semester

UNIX

Course Objectives

1. To understand Unix Operating System
2. To explore the Basic Shell Commands

Course Outcomes

After this course, the student will be able to

1. Implement and innovate commands using the basic tool kit.
2. Develop shell programs in vi/vim editor

Unit I

UNIX OPERATING SYSTEM

Overview of UNIX Operating System, basic features of Unix operating System, File Structure, CPU Scheduling, Memory Management, File System Implementation of Operating System Functions in UNIX.

Unit II

Starting Of Unix and Text Manipulation and user-to-user communication User Names and Groups, Logging In, Format of Unix Commands, Changing your password, Unix Documentation,

Unit III

Files and Directories: , File permission, Basic Operation on Files, Changing Permission Modes, Standard files , Processes Inspecting Files, Operating On Files, Printing Files, Rearranging Files, Sorting Files, Splitting Files, Translating Characters, On line communication, Off line communication.

Unit IV

VI EDITORS

General characteristics, Adding text and Navigation, changing text, searching for text, copying and Moving text, Features of Ex, Line Editors Ex and Ed, Stream editor SED, changing several file s in SED, AWK.

Unit V

Shell Programming:

Programming in the Bourne and C-Shell, Wild Cards, Simple Shell program, variables, Programming Construct, Interactive Shell scripts, Advanced Features, Unix Compiler, Maintaining program System Administration Define system Administration, Booting the system, Maintaining User Accounts, File System, and special files, Backup and Restoration.

References Books:

1. Unix and shell Programming by B.M Harwani, OXFORD University Press
2. Unix Concept and application- Sumitabhadas
3. Unix Shell Programming-Yashwant Kanetkar
4. Unix Programming Environment- RobPike
5. Unix in a Nutshell- Donill Gily

Student Activity:

1. Load unix/linux in your system in a separate drive
2. Create graphics in unix environment

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Unix Lab

1. Execute of various file/directory handling commands.
 2. Write a Simple shell script for basic arithmetic and logical calculations.
 3. Write Shell scripts to check various attributes of files and directories.
 4. Write Shell scripts to perform various operations on give n strings.
 5. Write Shell scripts to explore system variables such as PATH, HOME etc.
 6. Write Shell scripts to check and list attributes of processes.
 7. Execute various system administrative commands
 8. Write awk script that uses all of its features.
 9. Use sed instruction to process /etc/password file.
 10. Write a shell script to display list of users currently logged in.
 11. Write a shell script to delete all the temporary files.
 12. Write a shell script to search an element from an array using binary searching.
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DATA STRUCTURES USING JAVA

Course Objectives

To introduce the fundamental concept of data structures and to emphasize the importance of data structures in developing and implementing efficient algorithms. In addition, another objective of the course is to develop effective software engineering practice, emphasizing such principles as decomposition, procedural abstraction, and software reuse.

Course Outcomes

After completing this course satisfactorily, a student will be able to:

1. Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.
2. Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs.
3. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs
4. Demonstrate different methods for traversing trees
5. Compare alternative implementations of data structures with respect to performance
6. Compare and contrast the benefits of dynamic and static data structures implementations
7. Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack .
8. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.

UNIT I

Concept of Abstract Data Types (ADTs)- Data Types, Data Structures, Storage Structures, and File Structures, Primitive and Non-primitive Data Structures, Linear and Non-linear Structures.

Linear Lists - ADT, Array and Linked representations (Single and Double Linked lists), Pointers.

UNIT II

Stacks: Definition, ADT, Array and Linked representations, Implementations and Applications.

Queues: Definition, ADT, Array and Linked representations, Circular Queues, Dequeues, Priority Queues and Applications.

UNIT III

Trees: Binary Tree, Definition, Properties, ADT, Array and Linked representations, Implementations and Applications, Heaps Trees and Applications,

Binary Search Trees (BST) - Definition, ADT, Operations and Implementations, BST with Duplicates and Applications.

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UNIT IV

Graphs – Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees.

UNIT- V

Sorting and Searching: Selection, Insertion, Bubble, Merge, Quick, Sequential and Binary Searching.

REFERENCE BOOKS

1. SamanthaD, Classic Data Structures, Prentice-Hall of India, 2001
2. Sahani S, Data Structures, Algorithms and Applications in C++, McGraw-Hill, 2002.
3. D S Malik, Data Structures Using C++, Thomson, India Edition 2006
4. Heilman G I., Data Structures, Algorithms and Object-Oriented Programming, Tata McGraw-Hill. 2002. (Chapters I and 14).
5. Tremblay .1 P, and Sorenson P G, Introduction to Data Structures and Applications, Tata McGraw-Hill,
6. Drozdek A, Data Structures and Algorithms in C++), 2nd edition, Vikas Publishing House, 2002.
7. Kanetkar Y P, Data Structures through C ++, BPB Publications. 2003.
8. Data Structures by Allen Weiss

Student Activity:

1. Create Visual Stack using graphics in JAVA
 2. Create Visual Queue using graphics in JAVA
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DATA STRUCTURES USING JAVA LAB

1. Write Programs to implement the Stack operations using an array.
 2. Write Programs to implement the Queue operations using an array.
 3. Write Programs to implement the Stack operations using Pointers.
 4. Write Programs to implement the Queue operations using Pointers.
 5. Write a program for arithmetic expression evaluation.
 6. Write a program for Binary search Tree Traversals
 7. Write a program to implement dequeue using a doubly linked list.
 8. Write a program to search an item in a given list using
 - (i) Linear Search
 - (ii) Binary Search.
 9. Write a program for
 - (i)Bubble Sort
 - (ii) Quick Sort
 - (iii)Merge Sort.
 10. Write a program for polynomial addition using SLL
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BCA II Year IV Semester

WEB PROGRAMMING

Course Objective

- To provide knowledge on web architecture, web services, client side and server side scripting technologies to focus on the development of web-based information systems and web services.
- To provide skills to design interactive and dynamic web sites.

Course Outcome

1. To understand the web architecture and web services.
2. To practice latest web technologies and tools by conducting experiments.
3. To design interactive web pages using HTML and Style sheets.
4. To study the framework and building blocks of .NET Integrated Development Environment.
5. To provide solutions by identifying and formulating IT related problems.

UNIT I

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing - Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

UNIT II

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins – Frames – Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface.

UNIT III

ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.

Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures

UNIT IV

CORBA – Java Remote Method Invocation – DCOM. EDI: Overview – Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI – Financial EDI – EDI and internet.

UNIT V

XML: SGML – Basics of XML – XML Parsers – Need for a standard. **WAP:** Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack – Concerns about WAP and its future – Alternatives to WAP.

REFERENCE BOOK

1. WEB TECHNOLOGIES TCP/IP to Internet Applications Architectures – Achyut S Godbole & Atul Kahate, 2007, TMH.
2. Web Technologies by Uttam Kumar Roy, Oxform University Press
3. INTERNET AND WEB TECHNOLOGIES – Rajkamal, TMH.
4. TCP/IP PROTOCOL SUITE – Behrouz A. Forouzan, 3rd edition, TMH

Student Activity:

1. Design a website for your college
2. Design your personal web site

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WEB PROGRAMMING LAB

1. Create a simple HTML page which demonstrates all types of lists.
2. Create a letter head of your college using following styles
 - i. image as background
 - ii. use header tags to format college name and address
3. Create a web page, which contains hyper links like fruits, flowers, animals. When you click on hyper links, it must take you to related web page; these web pages must contain with related images.
4. Create a hyperlink to move around within a single page rather than to load another page.
5. Create a leave letter using different text formatting tags.
6. Create a table format given bellow using row span and colspan.

RNO	NAME	MARKS				
		M1	M2	M3	M4	M5

Insert 5 records.

7. Create a table with different formats as given bellow.
 - i. Give different background and font colors to table header, footer and body.
 - ii. Use table caption tag.
8. Divide a web page vertically and horizontally with scroll bars, name them as shown bellow decorate it with some items.

F1	F2
	F3

9. Create a student Bio-Data, using forms.
10. Create a web page using following style sheets
 - i. Inline style sheets.
 - ii. Embedded style sheets.
 - iii. External style sheets
11. Write a JavaScript program to accept two values from form and apply any 5 mathematical functions

Write student database with XML
