**Skill Enhancement Papers (SEC) (Computer Science) for other Departments/Disciplines: (Credit: 02 each)**

**North Lakhimpur College (Autonomous)**

Introduction to Linux / Unix

**1.Introduction :**

* What is linux/unix Operating systems
* Difference between linux/unix and other operating systems
* Features and Architecture
* Various Distributions available in the market
* Installation, Booting and shutdown process
* System processes (an overview)
* External and internal commands
* Creation of partitions in OS
* Processes and its creation phases – Fork, Exec, wait
1. **User Management and the File System:**
* Types of Users, Creating users, Granting rights
* User management commands
* File quota and various file systems available
* File System Management and Layout, File permissions
* Login process, Managing Disk Quotas
* Links (hard links, symbolic links)
1. **Shell introduction and Shell Scripting :**
* What is shell and various type of shell, Various editors present in linux
* Different modes of operation in vi editor
* What is shell script, Writing and executing the shell script
* Shell variable (user defined and system variables)
* System calls, Using system calls
* Pipes and Filters
* Decision making in Shell Scripts (If else, switch), Loops in shell
* Functions
* Utility programs (cut, paste, join, tr , uniq utilities)
* Pattern matching utility (grep)

**Reference Books:**

* Sumitabha, Das, Unix Concepts And Applications, Tata McGraw-Hill Education, 2006
* Michael Jang RHCSA/ RHCE Red Hat Linux Certification: Exams (Ex200 & Ex300) (Certification Press), 2011
* Nemeth Synder & Hein, Linux Administration Handbook, Pearson Education, 2nd Edition ,2010
* W. Richard Stevens, Bill Fenner, Andrew M. Rudoff, Unix Network Programming, The sockets Networking API, Vol. 1, 3rd Edition,2014

Software Lab Based on Linux:

1. Write a shell script to check if the number entered at the command line is prime or not.

2. Write a shell script to modify ―cal‖ command to display calendars of the specified months.

3. Write a shell script to modify ―cal‖ command to display calendars of the specified range of months.

4. Write a shell script to accept a login name. If not a valid login name display message – ―Entered login name is invalid‖.

5. Write a shell script to display date in the mm/dd/yy format.

6. Write a shell script to display on the screen sorted output of ―who‖ command along with the total number of users .

7. Write a shell script to display the multiplication table any number,

8. Write a shell script to compare two files and if found equal asks the user to delete the duplicate file.

 9. Write a shell script to find the sum of digits of a given number.

10. Write a shell script to merge the contents of three files, sort the contents and then display them page by page.

11. Write a shell script to find the LCD(least common divisor) of two numbers.

12. Write a shell script to perform the tasks of basic calculator.

13. Write a shell script to find the power of a given number.

14. Write a shell script to find the binomial coefficient C(n , x).

15. Write a shell script to find the permutation P(n,x).

16. Write a shell script to find the greatest number among the three numbers.

17. Write a shell script to find the factorial of a given number.

18. Write a shell script to check whether the number is Armstrong or not.

19. Write a shell script to check whether the file have all the permissions or not. Program to show the pyramid of special character ―\*‖.9.

# HTML Programming

**Theory classes: 15 lectures**

1. **Introduction**
2. **The Basics**
* The Head, the Body
* Colors, Attributes
* Lists, ordered and unordered
1. **Links**
* Introduction
* Relative Links, Absolute Links
* Link Attributes
* Using the ID Attribute to Link Within a Document
1. **Images**
* Putting an Image on a Page
* Using Images as Links
* Putting an Image in the Background
1. **Tables**
* Creating a Table
* Table Headers
* Captions
* Spanning Multiple Columns
* Styling Table
1. **Forms**
* Basic Input and Attributes
* Other Kinds of Inputs
* Styling forms with CSS
* Where To Go From Here

**Book Recommended**:

* Virginia DeBolt , Integrated HTML and CSS A Smarter, Faster Way to Learn Wiley / Sybex, 2006
* Cassidy Williams, Camryn Williams Introduction to HTML and CSS, O'Reilly, 2015

Software Lab Based on HTML:

1. Create an HTML document with the following formatting options:
	1. Bold
	2. Italics
	3. Underline
	4. Headings (Using H1 to H6 heading styles)
	5. Font (Type, Size and Color)
	6. Background (Colored background/Image in background)
	7. Paragraph
	8. Line Break
	9. Horizontal Rule
	10. Pre tag
2. Create an HTML document which consists of:
	1. Ordered List
	2. Unordered List
	3. Nested List
	4. Image
3. Create an HTML document which implements Internal linking as well as External linking. Q.4
4. Create a table using HTML which consists of columns for Roll No., Student‘s name and grade.

|  |
| --- |
| Results |
| Roll no | Name  | grade |
|  |  |  |

1. Create a Table with the following view:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  | Place an image here |
|  |  |  |
|  |  |  |

1. Create a form using HTML which has the following types of controls:
2. Text Box
3. Option/radio buttons
4. Check boxes
5. Reset and Submit buttons
6. Create HTML documents (having multiple frames)