

# Bangladesh Sweden Polytechnic Institute

Kaptai, Rangamati Hill Tracts.

**Teacher: Patha Sarathi Suman Dutta (Instructor)**

**Sub: COMPUTER SYSTEM SOFTWARE**

**Code: 6664**

## **1<sup>st</sup> Week:**

Lecture 1:

### **1 Understand the general features of operating system.**

- 1.1 Define operating system, Kernel and monitor program.
- 1.2 Describe the functions (of kernel) and services of operating system
- 1.3 Describe the abstract view of the components of computer system.
- 1.4 Describe the evolution (history) of operating system.

Lecture 2:

- 1.5 Explain the role of operating system as an extended machine and as a resource manager.
- 1.6 Mention the important features of DOS, Windows, UNIX and LINUX.
- 1.7 Define the terms-Multi-user, Multitasking and GUI.

## **2<sup>nd</sup> Week:**

Lecture 3:

### **2 Understand the terms related to operating system.**

- 2.1 Define batch processing system
- 2.2 Describe the method of batch processing system.
- 2.3 State the disadvantages of batch processing.

Lecture 4:

- 2.4 Describe the uses of job control language for operating system.
- 2.5 Describe the process of spooling.

### **3 Understand the basics of process management.**

- 3.1 Define Process.
- 3.2 Describe the process state with diagram.

## **3<sup>rd</sup> Week:**

Lecture 5:

- 3.3 Mention the difference between process and program.
- 3.4 Describe the importance of process control.
- 3.5 Describe the function of Scheduler and traffic controller.
- 3.6 Explain the process Scheduling and scheduling queues.
- 3.7 Explain the race conditions and stalemate.

Lecture 6:

3.8 Describe the manner in which multiple processors may be used for Multi programming.

**Quiz Test-1(Ch 1&2).**

**4<sup>th</sup> Week:**

Lecture 7:

**4 Understand the concept of CPU Scheduling.**

4.1 Define Scheduling.

4.2 State the types of Scheduling.

4.3 Describe the Scheduling criteria.

4.4 State the terms CPU and I/O burst cycle, CPU Scheduler, Dispatcher.

4.5 Describe Scheduling Algorithms.(FCFS – First come first serve , SJF – Shortest job first, RR- Round Robin, Priority)

Lecture 8:

**5 Understand the concepts of deadlock.**

5.1 Define Deadlock, Preempt able and Non-Preempt table resources.

5.2 Mention the Necessary conditions of Deadlocks.

5.3 Describe the Deadlock Prevention.

5.4 Explain the Deadlock avoidance and their algorithm.

**5<sup>th</sup> Week:**

Lecture 9:

5.5 Describe the Deadlock detection algorithm.

5.6 Explain the way of recovery from Deadlock.

**6 Understand the concept of I/O system.**

6.1 State the Characteristics and principle of I/O hardware.

6.2 Describe the role of Operating system in I/O operation.

6.3 Describe the I/O aspects of Operating System.

Lecture 10:

6.4 Describe the goals of I/O software.

6.5 Describe the function of each layer of I/O system.

**Class Test-1(Content of QT-1 & Ch 3&4).**

## **6<sup>th</sup> Week:**

Lecture 11:

### **7 Understand the technique of memory management.**

- 7.1 Mention the function of memory management.
- 7.2 Describe the Single / Multiple partition schemes.
- 7.3 Explain fixed memory partition with separate / single input queue.
- 7.4 Explain the external and internal fragmentation.

Lecture 12:

- 7.5 Describe relocatable and dynamically relocatable partitioned Allocation.
- 7.6 Describe Swapping.
- 7.7 Describe the segmented allocation and segmented page.
- 7.8 Describe the concept of virtual memory and demand paging.

## **7<sup>th</sup> Week:**

Lecture 13:

### **Quiz Test-2(Ch 5&6).**

Lecture 14:

### **8 Understand the concept of file system.**

- 8.1 Mention the concept and attributes of file.
- 8.2 Describe the basic file operation.
- 8.3 State the terms: the file pointer, file open count, disk location of file.
- 8.4 Mention the file types with common features.
- 8.5 Define file system.

## **8<sup>th</sup> Week:**

Lecture 15:

- 8.6 Describe the organization of file system.
- 8.7 Describe the features of general file system.
- 8.8 Describe the free space management of disk space.
- 8.9 Describe the allocation methods of disk space.

Lecture 16:

### **9 Understand the feature of Linux Operating system.**

- 9.1 State the background and importance of Linux.
- 9.2 Describe the features of Linux Kernel.
- 9.3 State the advantages of Linux Operating system.

## **9<sup>th</sup> Week:**

Lecture 17:

9.4 State the features of GNOME and KDE desktop.

9.5 Define Shell.

9.6 Mention the name of different shell for different user.

9.7 State the function of Linux Shell.

Lecture 18:

**Class Test-2(Content of QT-2 & Ch 7&8).**

## **10<sup>th</sup> Week:**

Lecture 19:

**Quiz Test-4(Ch 9).**

**Review Class.**

## **Reference Books & [Url:-](#)**

1. Operating System Concepts  
By - Silberschatz Galvin, Gagne  
Publication- John Wiley & Sons (Asia) Pte Ltd.
2. Operating Systems  
By - Achyut S. Godbole  
Publication - Tata McGraw-Hill
3. Modern Operating Systems  
By - Andrew S. Tanenbaum  
Publication - Prentice Hall of India
4. Computer Fundamentals  
By- P.K.Sinha
5. Red Hat Fedora Linux 2 bible  
By – Christopher Negus
6. Learning Red Hat Linux  
By – Bill Mc Carty

## **Reference Websites**

- 1) [www.denett.com](http://www.denett.com)
- 2) [www.tatamcgrawhill.com](http://www.tatamcgrawhill.com)
- 3) [www.phindia.com](http://www.phindia.com)
- 4) [ww.wiley.com/college/silberschatz6e/0471417432/slides/ppt](http://ww.wiley.com/college/silberschatz6e/0471417432/slides/ppt)
- 5) [www.en.wikipedia.org](http://www.en.wikipedia.org)
- 6) [www.computerworld.com](http://www.computerworld.com)
- 7) [www.computer.howstuffworks.com](http://www.computer.howstuffworks.com)
- 8) [www.willamstallings.com/os4e.html](http://www.willamstallings.com/os4e.html)

9) [www.deitel.com/books/os3e/slides.html](http://www.deitel.com/books/os3e/slides.html)

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**Practical class**

**1'st Week:**

**Lecture 1:**

**1 Perform the task to install Linux operating system.**

- 1.1 Arrange the necessary hardware for installing Linux network operating system
- 1.2 Insert the First CD/DVD in the appropriate installation drive.
- 1.3 Start the boot procedure.
- 1.4 Check the installation media.
- 1.5 Choose a Language
- 1.6 Choose a Keyboard.
- 1.7 Select monitor Configuration
- 1.8 Choose install type
- 1.9 Choose Partitioning strategy
- 1.10 Choose Partitioning options
- 1.11 Configure boot loader.
- 1.12 Configure advance boot loader
- 1.13 Configure networking
- 1.14 Choose firewall configuration.
- 1.15 Choose additional language support.
- 1.16 Choose a time zone.
- 1.17 Set root password.
- 1.18 Select packages.
- 1.19 Configure the monitor.
- 1.20 Finish installation.

## **2'nd Week:**

### **Lecture 2:**

#### **2. Perform the task to Make partition to a Hard disk with disk Druid.**

- 2.1 Delete the partition in disk druid.
- 2.2 Add a partitions in disk druid.
- 2.3 Edit a partitions in disk druid.

#### **3. Perform the task to Make partition to a Hard disk with fdisk .**

- 3.1 Use fdisk command to list all partition,to see each partition is being used and to change the partition.
- 3.2 Delete the partition.
- 3.3 Create partitions.
- 3.4 Change the partition type.
- 3.5 Display the partition table and exit.

## **3'rd Week:**

### **Lecture 3:**

#### **Job 1:Installation procedure of red hat linux.**

## **4'Th Week:**

### **Lecture 4:**

#### **4. Perform the task to Use the FIPS utility.**

- 4.1 Check windows /DOS partition.
- 4.2 Create a bootable FIPS Floppy.
- 4.3 Defragment the Harddisk.
- 4.4 Reboot(FIPS boot disk) and test.
- 4.5 Run FIPS

4.6 Reboot(FIPS boot disk) and test.

4.7 Restart the computer.

**5. Perform the task to Use GRUD boot loader.**

5.1 Boot the computer with GRUD.

5.2 Change or Add boot options(Temporarily or Permanently).

5.3 Add a new GRUD boot image.

**5'Th Week:**

**Lecture 5:**

**Job 2: Performing HDD partition.**

**6'Th Week:**

**Lecture 6:**

**4. Perform the task to Use the FIPS utility.**

4.1 Check windows /DOS partition.

4.2 Create a bootable FIPS Floppy.

4.3 Defragment the Harddisk.

4.4 Reboot(FIPS boot disk) and test.

4.5 Run FIPS

4.6 Reboot(FIPS boot disk) and test.

4.7 Restart the computer.

**5. Perform the task to Use GRUD boot loader.**

5.1 Boot the computer with GRUD.

5.2 Change or Add boot options(Temporarily or Permanently).

5.3 Add a new GRUD boot image.

**7'Th Week:**

**Lecture 7:**

**8. Perform the task to manage files with the conqueror file manager.**

8.1 Open a file.

8.2 Choose an application.

8.3 Delete,copy, paste,move and link files.

8.4 View quick file information,hiddenfiles,file system tree.

8.5 Display the system users with *who*.

8.6 Change icon size

8.7 Search for fliles

8.8 Create new file and folders.

**9 Apply basic Linux commands and utilities.**

9.1 Use the command options to modify the basic function of linux commands.

9.2 Use two or more linux commands in tandem by using input and output redirection.

9.3 Use the parameters with linux commands.

9.4 Select and use the notational shorthand used in linux documentation.

9.5 Use the linux online man pages and help facilities.

9.6 Use the wildcards.

9.7 Check the environmental variables.

9.8 List the processes running on the linux system.

9.9 Kill the processes.

**8'Th Week:**

**Lecture 8:**

**Job 3: Performing task with Different type of boot loader.**

**9'Th Week:**

**Lecture 9:**

**10. Work with the linux file system.**

- 10.1 List the type of files and directories.
- 10.2 Move one directory to another.
- 10.3 Make a new file and directory.
- 10.4 Move and copy files.
- 10.5 Remove the files and directories.
- 10.6 Use *chown* and *chgrp* to change file and directory ownership.
- 10.7 Use *chmod* to change the file and directory permissions.
- 10.8 Use *gunzip* command to uncompress .gz files compressed by gzip.

**10'Th Week:**

**Lecture 10:**

**11. Work with bash (Bourne Again shell).**

- 11.1 Select the most common shells used in linux.
- 11.2 Enter commands into bash.
- 11.3 Use wildcards that bash shell supports.
- 11.4 Use the history command with or without options.
- 11.5 Use the aliases command.
- 11.6 Use the input/output redirection command.
- 11.7 Show the use of pipeline.
- 11.8 Modify the bash shell.

**11'Th Week:**

**Lecture 11:**

**Job 4: Working with file system & bash shell.**

**12 Use file systems, disks and other derives.**

- 12.1 Mount the flash / optical drives
- 12.2 Make a new file system.
- 12.3 Unmount the flash / optical drives.
- 12.4 Use tar and gzip.
- 12.5 Use tar command to backup files in flash / optical drives

**12'Th Week:**

**Lecture 12:**

**13 Manage the users account.**

- 13.1 Make the root (superuser) suppresser accounts.
- 13.2 Make the user accounts.
- 13.3 Add and delete users.
- 13.4 Delete groups.

**14 Work with text editors.**

- 14.1 Select the text editor in linux.



- 14.2 Use vi editor to enter & edit text.
- 14.3 Use emacs to enter & edit text.

**13'Th Week:**

**Lecture 13:**

**Job 5 Working with SD,FS**

**15 Work with the printer in linux.**

- 15.1 Select the printer to support in linux.
- 15.2 Configure the printer.
- 15.3 Use the commands lpr, lpq, lprm and lpc for printing documents under Linux.

**14'Th Week:**

**Lecture 14:**

**16. Manage Data Using NTFS**

- 16.1 Compress Data on an NTFS Partitions.
- 16.2 Configure Disk quotas on NTFS Partitions.
- 16.3 Secure files by using EFS.

**17. Monitor and Optimize Performance and implement security in Windows XP windows 2003 server /Windows 7 / windows 10.**

- 17.1 Using Task Manager to Monitor system recourse.
- 17.2 Using system monitor to monitor system Performance.
- 17.3 Optimizing Performance.
- 17.4 Secure services using security policies.
- 17.5 Audite Access to system Resources.