Lesson Plan

**Name of faculty :** Saravjit Chahal

**Discipline :** Computer Engg.

**Semester :** 3rd (CO-2)

Subject : Operating System

**Lesson Plan Duration** : 15 Weeks (from September 15 to January 16)

**Workload (Lecture / Practical) per week (in hours):** Lectures-03, Practical-03

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| **Week** | **Theory** | | **Practical** | |
| **Lecture day** | **Topic**  **(including assignment / test)** | **Practical Day** | **Topic** |
| **1st** | **1st** | Definition of Operating Systems, Types of Operating Systems, , | 1st | Prac. 1  Demonstration of all the controls provided on Control Panel |
| **2nd** | Operating System Services |
| **3rd** | User operating system interface, |
| **2nd** | **4th** | System Calls, Types of System Calls | 2nd | Demonstration of all the controls provided on Control Panel |
| **5th** | System Program |
| **6th** | Operating System Structure, |
| **3rd** | **7th** | Virtual Machine, Benefits of Virtual Machine | 3rd | Prac. 2  Exercise on Basics of windows. |
| **8th** | Revision |
| **9th** | Revision |
| **4th** | **10th** | Process concept, Process State, Process Control Block, | 4th | Prac. 3  Installation of Linux Operating System |
| **11th** | Process Scheduler, Context Switch, |
| **12th** | Operations on Processes, Interprocess Communication, |
| **5th** | **13th** | Scheduling Queues, Scheduler, Job Scheduler, , | 5th | Prac. 4  Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir |
| **14th** | Shared Memory Systems, Message-Passing Systems |
| **15th** | CPU Scheduler, Scheduling Criteria, Scheduling Algorithms, |
| **6th** | **16th** | Preemptive and Non-Preemptive, First come first serve (FCFS), Shortest Job first | 6th | Usage of directory management commands of Linux: ls, cd, pwd, mkdir, rmdir |
| **17th** | (SJF), Round Robin (RR), Multiprocessor scheduling, |
| **18th** | Process Synchronization. |
| **7th** | **19th** | Deadlock, Conditions for Dead | 7th | Prac. 5  Usage of File Management commands of Linux: cat, |
| **20th** | , Methods for handling deadlocks, Dead Prevention, |

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| **Week** | **Theory** | | **Practical** | |
| **Lecture day**  **21st** | **Topic**  **(including assignment / test)**  Lock Deadlock Avoidance, Deadlock detection, Recovery from deadlock. | **Practical Day** | **Topic**  chmod,cp, mv, rm, pg, more, find |
| **8th** | **22nd** | Definition – Logical and Physical address Space, Swapping, , | 8th | Usage of File Management commands of Linux: cat, chmod,cp, mv, rm, pg, more, find |
| **23rd** | Memory allocation, Contiguous Memory allocation, Fixed and variable partition, |
| **24th** | Internal and External fragmentation and Compaction |
| **9th** | **25th** | Paging – Principle of operation, Page allocation, | 9th | Prac. 6  Use the general purpose commands of Linux: wc, od, lp, cal , date, who, whoami |
| **26th** | Hardware support for paging, Protection and sharing, Disadvantages of paging, |
| **27th** | Segmentation, Virtual Memory. |
| **10th** | **28th** | Revision | 10th | Use the general purpose commands of Linux: wc, od, lp, cal , date, who, whoami |
| **29th** | Dedicated Devices, Shared Devices, I/O Devices, Storage Devices, |
| **30th** | Buffering, Spooling. |
| **11th** | **31st** | Types of File System; Simple file system, Basic file system, | 11th | Prac. 7  Using the simple filters: pr, head, tail, cut, paste, nl, sort |
| **32nd** | Logical file system, Physical file system, |
| **33rd** | Various Methods of Allocating Disk Space |
| **12th** | **34th** | History of Linux and Unix, Linux Overview, Structure of Linux, Linux releases, | 12th | Prac. 8  Communication Commands: news, write, talk, mseg, mail, wall |
| **35th** | Open Linux, Linux System Requirements, |
| **36th** | Linux Commands and Filters: mkdir, cd,rmdir,pwd, ls,  who, whoami, date, cat,chmod, |
| **13th** | **37th** | , cp, mv, rm,pg,more, pr, tail, head, cut, paste, nl, grep | 13th | Prac. 9  Write a shell program that finds the factorial of a number. |
| **38th** | wc, sort, kill, write, talk,mseg,wall, merge,mail, news |
| **39th** | Shell: concepts of command options, input, output,redirection,pipes, |
| **14th** | **40th** | redirecting and piping with standard errors, | 14th | Prac 10  Write a shell program that finds whether a given number is prime or not. |
| **41st** | Shell scripts,vi editing commands |
| **42nd** | Shell scripts,vi editing commands |
| **15th** | **43rd** | Revision | 15th |  |
| **44th** | Revision |
| **45th** | Revision |