



# SANATAN DHARMA COLLEGE, AMBALA CANTT

College with Potential for Excellence, UGC, New Delhi  
NAAC Accredited Grade "A+" with CGPA 3.51 in 3<sup>rd</sup> cycle  
ISO 9001:2015 & ISO 14001:2015 Certified



## Department of Computer Science Lesson Plan (Session 2022-2023)

Class: B.Voc

Sem: VI

Course Code: BVSD-64

Nomenclature: Linux and Shell Programming

Dates: 5 Sep, 2022- 25 Dec, 2022

### SYLLABUS

#### BVSD-64 Linux and Shell Programming

Maximum marks: 100

Time: 3 hours

External: 80

Internal: 20

**Note:** Examiner will be required to set NINE questions in all. Question Number 1 will consist of objective type/short-answer type questions covering the entire syllabus. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus.

Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

#### Unit I

Definition of Operating System, Types of Operating System, Features of Unix, Basic Architecture of Linux System, Features of Kernel and Shell;

Linux File System: Boot Block, Super Block, Inode Table, Data Blocks, How Linux Kernel Access Files, Linux Standard File System.

#### Unit II

Structure of File System, Essential Linux Commands - Commands for Files and Directories, Creating and Viewing Files using cat, cd, is, cp, md, rm, mkdir, rmdir, pwd, file, more, less, file comparisons- cmp & comm, View Files, Disk Related Commands, Checking Disk Free Spaces, chmod with its options, cal, date, who, tty, lp, sty;

Filter and Pipes: head, tail, wc, pr, cut, paste, sort, uniq, grep, egrep, fgrep, tee;

The Process: Shell Process, Parent and Children, Process Status, System Process, Multiple Jobs in Background and Foreground, Changing Process Priority with nice, Premature Termination of Process, Mathematical Commands - bc, expr, factor, and units.

#### Unit III

Creating and Editing Files with VI Editor with their Command Options, Operators, Text Deletion, Text Movement, Changing Text, Yanking Text, Filtering Text, The ex mode, Moving Text from one File to another.

Communication: The Bulletin Board- News, Write, Mesg, Talk, Mail, elm, Pine, Finger, Vacation and Connecting to Remote Machine.

#### Unit IV

System Administration Common Administrative Tasks, Identifying Administrative Files - Configuration and Log Files, Role of System Administrator, Managing User Accounts - Adding and Deleting Users, Changing Permissions and Ownerships.

Installation of Linux System- Linux Installation Requirement, Complete Procedure Steps, Partitioning the Hard Drive, System Startup and Shutdown Process, init and run Levels, File System Mounting, Ipstat, Backup Strategy, Installing Software on Linux.

**TEXT BOOKS:**

- Bandel David, Napier, Using Linux, Pearson Education
- Blum Richard, Beginning Linux Programming 4<sup>th</sup> Edition, John Wiley & Sons

**REFERENCE BOOKS:**

- Sarwar Syed Mansoor, Kortskey Robert, Unix, Pearson Education, 2005
- Das Sumitabha, Unix Concepts & Applications, Tata McGraw Hill, 2008

**Course Outcomes**

After the completion of this course, prospective Computer professionals will have the ability to

<b>Course Title</b>	<b>Linux &amp; Shell Programming</b>
<b>CO No.</b>	<b>Course Outcomes</b>
<b>CO-1</b>	<b>Use command substitution to capture program output.</b>
<b>CO-2</b>	<b>Use conditional statements to control the execution of shell scripts.</b>
<b>CO-3</b>	<b>Write shell scripts to perform repetitive tasks using while and for loops.</b>
<b>CO-4</b>	<b>Design and implement shell functions.</b>
<b>CO-5</b>	<b>Identify and process command-line arguments.</b>

<b>S.No</b>	<b>Instructional Technique</b>	<b>Assessment Methods(AM)</b>
<b>1</b>	<b>Chalk &amp; Talk</b>	<b>Assignments</b>
<b>2</b>	<b>ICT tools</b>	<b>Quiz</b>
<b>3</b>	<b>Group discussions</b>	<b>Group Discussions</b>
<b>4</b>	<b>Industrial visit</b>	<b>Oral Tests</b>
<b>5</b>	<b>Case studies</b>	<b>Sessional</b>
<b>6</b>	<b>Small Projects</b>	<b>Presentations</b>
<b>7</b>	<b>Workshop</b>	<b>Seminar</b>
<b>8</b>	<b>Spoken Tutorials</b>	<b>University Exams</b>
<b>9</b>	<b>Flipped Class</b>	
<b>10.</b>	<b>E-Resources</b>	

# Detailed Lesson Plan

Date	Topics to be covered	Instructional Technique	Assessment Method
01.02.2023	Definition of Operating System, Types of Operating System	2-(PPT/Projector)	1,2,3,4
05.02.2023	<b>SUNDAY</b>		
06.02.2023	Features of Unix	2-(PPT/Projector)	1,2,3,4
07.02.2023	Architecture of Linux System	2-(PPT/Projector)	1,2,3,4
08.02.2023	Linux File System: Boot Block, Super Block, Inode Table, Data Blocks	2-(PPT/Projector)	1,2,3,4
12.02.2023	<b>SUNDAY</b>		
13.02.2023	How Linux Kernel Access Files	2-(PPT/Projector)	1,2,3,4
14.02.2023	Linux Standard File System	2-(PPT/Projector)	1,2,3,4
15.02.2023	Revision		4
19.02.2023	<b>SUNDAY</b>		
20.02.2023	Linux Standard File System	1	1,2,3,4
21.02.2023	Revision		4
22.02.2023	Structure of File System	2-(PPT/Projector)	1,2,3,4
26.02.2023	<b>SUNDAY</b>		
27.02.2023	Linux Commands - Commands for Files and Directories	2-(PPT/Projector)	1,2,3,4
28.02.2023	Creating and Viewing Files using cat, cd, is, cp, md, rm, mkdir, rmdir, pwd, file, more, less	2-(PPT/Projector)	1,2,3,4
01.03.2023	file comparisons- cmp & comm, View Files, Disk Related Commands	2-(PPT/Projector)	1,2,3,4
05.03.2023	<b>SUNDAY</b>		
06.03.2023	<b>HOLI VACATIONS</b>		
07.03.2023			
08.03.2023			
09.03.2023			
10.03.2023			
11.03.2023			
12.03.2023	<b>SUNDAY</b>		
13.03.2023	Checking Disk Free Spaces, chmod with its options, cal, date, who, tty, lp, sty; Filter and Pipes: head, tail, wc, pr, cut, paste, sort, uniq, grep, egrep, fgrep, tee	2-(PPT/Projector)	1,2,3,4

14.03.2023	The Process: Shell Process, Parent and Children, Process Status, System Process, Multiple Jobs in Background and Foreground	2-(PPT/Projector)	1,2,3,4
15.03.2023	Changing Process Priority with nice, Premature Termination of Process, Mathematical Commands - bc, expr, factor, and units	2-(PPT/Projector)	3,4
19.03.2023	<b>SUNDAY</b>		
20.03.2023	Revision		4
21.03.2023	Assignment	6	1,2,3,4
22.03.2023	Creating and Editing Files with VI Editor with their Command Options	2-(PPT/Projector)	1,2,3,4
26.03.2023	<b>SUNDAY</b>		
27.03.2023	Operators, Text Deletion, Text Movement, Changing Text, Yanking Text	2-(PPT/Projector)	1,2,3,4
28.03.2023	Filtering Text, The ex mode, Moving Text from one File to another	2-(PPT/Projector)	1,2,3,4
29.03.2023	Communication: The Bulletin Board- News, Write, Mesg, Talk	2-(PPT/Projector)	1,2,3,4
02.04.2023	<b>SUNDAY</b>		
03.04.2023	Mail, elm, Pine, Finger, Vacation and Connecting to Remote Machine	2-(PPT/Projector)	1,2,3,4
04.04.2023	<b>HOLIDAY</b>		
05.04.2023	Sessional		
09.04.2023	<b>SUNDAY</b>		
10.04.2023	System Administration Common Administrative Tasks	2-(PPT/Projector)	1,2,3,4
11.04.2023	Identifying Administrative Files - Configuration and Log Files	2-(PPT/Projector)	1,2,3,4
12.04.2023	Role of System Administrator	2-(PPT/Projector)	1,2,3,4
16.04.2023	<b>SUNDAY</b>		
17.04.2023	Managing User Accounts	2-(PPT/Projector)	1,2,3,4
18.04.2023	Adding and Deleting Users, Changing Permissions and Ownerships	2-(PPT/Projector)	1,2,3,4
19.04.2023	Revision		4
23.04.2023	<b>SUNDAY</b>		
24.04.2023	Installation of Linux System- Linux Installation Requirement	2-(PPT/Projector)	1,2,3,4
25.04.2023	Procedure Steps, Partitioning the Hard Drive	2-(PPT/Projector)	1,2,3,4
26.04.2023	System Startup and Shutdown Process, init and run Levels	2-(PPT/Projector)	1,2,3,4

<b>30.04.2023</b>	<b>SUNDAY</b>		
<b>01.05.2023</b>	File System Mounting, lpstat, Backup Strategy	<b>2-(PPT/Projector)</b>	<b>1,2,3,4</b>
<b>02.05.2023</b>	Installing Software on Linux.	<b>2-(PPT/Projector)</b>	<b>1,2,3,4</b>
<b>03.05.2023</b>	Revision		<b>4</b>
<b>07.05.2023</b>	<b>SUNDAY</b>		
<b>08.05.2023</b>	Revision		<b>10</b>
<b>09.05.2023</b>	Revision		<b>10</b>
<b>10.05.2023</b>	Revision		<b>10</b>
<b>14.05.2023</b>	<b>SUNDAY</b>		
<b>15.05.2023</b>	Revision of Previous Years Question Papers		<b>3</b>
<b>16.05.2023</b>	Revision of Previous Years Question Papers		<b>3</b>
<b>17.05.2023</b>	Revision of Previous Years Question Papers		<b>3</b>

	Teacher Incharge	Head of the Department
Name	Arti Sachdeva	Dr. Girdhar Gopal
Sign with Date		