

GURU NANAK COLLEGE, BUDHLADA

Under the management of S.G.P.C. Sri Amritsar Sahib
Affiliated with Punjabi University, Patiala & Approved by AICTE



Course File

M.Sc(IT) II+LE Year Semester-IV

M.S. 222 – Linux Administration

Department of Computer Science

Name of Teacher	:	Amandeep Kaur
Designation	:	Assistant Professor
Department	:	Computer Science
Subject	:	Linux Administration

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1.Student Profile:

Guru Nanak College Budhlada						
M.SC IT II+LE, 2022-23						
S No	Roll No	Reg No.	Student Name	Category	Father's Name	Contact No.
1	10502	5111-2018-1847	Rampy Kaur	sc	Gurdas Singh	9501261257
2	10504	5111-2018-281	Manpreet Kaur	sc	kulwindersingh	9815379834
3	10506	5111-2017-1511	Amanjot Kaur	general	Jagdeep Singh	8146784802
4	10509	5111-18-1854	Sarbjeet Singh	sc	gurcharansingh	8284965377
5	10510	5111-18-1482	Lovely Garg	general	seeopal	7307809066
6	10512	5111-18-1858	Mamta Kaur	sc	Bhola Singh	8146230647
7	10513	5111-18-1487	Gurdeep Singh	sc	Sukhwindersingh	9463629137
8	10514	5111-18-1483	KhushpreetSingh	general	mishra Singh	9056508665
9	10515	5126-17-202	Ramandeep Kaur	general	charanjitsingh	9463617024
10	10516	5111-18-1478	Gurpreet Singh	BC	Jasmail Singh	8284033046
11	10517	5111-18-1846	Ashish Kumar	general	sunilkumar	9779458657
12	10518	5132-2017-301	Rajwinder Singh	sc	amarsingh	8283838039
M.SC IT LATERAL						
13	20101	5130-2018-236	Harpreet Singh	sc	NATHA SINGH	8427897959
14	20102	8114-17-1110	Kulwinder Kaur	general	AVRINDER SINGH	7347690013
15	20103	519-15-331	Amritpal	general	hukamchand	8288838494
16	20104	5128-2018-143	Geetu Rani	sc	Balli Ram	9779599971
17	20105	5128-2018-227	Mandeep Kaur	sc	Jasveer Singh	9814199057
18	20106	5128-2018-328	Sarbjeet Kaur	sc	Gurnaib Singh	8146255012
19	20107	5111-17-509	Amandeep Singh	sc	ruldusingh	8729038123
20	20111	5136-2018-333	Kamalpreet Singh	BC	AJIT SINGH	6280387182
21	20112	5136-2018-314	Harpreet Singh	sc	GULAB SINGH	9041671500
22	20113	5128-2018-142	Gurmeet Kaur	sc	BINDER SINGH	8872128261
23	20114	5128-2018-205	Kulminder Kaur	sc	AMAR SINGH	9915360966
24	20117		Mandeep Kaur	sc	satnamsingh	9056835140

2.Time Table:

Time Table 2022-2023						
Name	I	II	III	IV	V	VI
Amandeep Kaur	M.Sc IT 2 + LE Linux Administration	B.Voc CS II Ethical Hacking Level-2	BCA 1 Data Structures	M.Sc IT 2 + LE Linux Administration Lab	B.Voc CS II Ethical Hacking Lab	B.C.A II Maths Lab

3. Syllabus

M.Sc. (IT) Semester IV

(2022-23 Session)

Code No.	Semester System-IV	Lecture Per week	Univ. Exam. Marks	Int. Ass. Marks	Time Total Allowed
MS-221	Computer Graphics	5	70	30	3 Hrs
MS-222	Linux Administration	5	70	30	3 Hrs
MS-223	Research Methodology	5	70	30	3 Hrs
MS-224	Artificial Intelligence	5	70	30	3 Hrs
MS-225	Programming Lab-VI (Computer Graphics)	8	70	30	3 Hrs
MS-226	Programming Lab-VII (LINUX Administration)	8	70	30	3 Hrs

CONTINUOUS ASSESSMENT (THEORY PAPERS)

1.	Two tests will be conducted during the Semester. Both the tests will be considered for assessment.	:	60% of the marks allotted for Continuous Assessment
2.	Assessment/Quizes	:	20% of the marks allotted for Continuous Assessment
3.	Attendance	:	10% of the marks allotted for Continuous Assessment.
4.	Class Participation and behavior	:	10% of the marks allotted for Continuous Assessment.

MS-222 : LINUX Administration

Maximum Marks: 70

Maximum Time: 3 Hrs.

Minimum Pass Marks: 35%

Lectures to be delivered: 40-45

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction: Overview of Linux, Linux's History, Advantages of Linux, Minimum System Requirements; **Installing Linux:** Choosing Text or Graphics Installation, Setting up your Hard Drive, Understanding the Swap Space, Creating the Linux File-system partition, Setting up the mouse, root password and Ethernet, Configuration X, Selecting packages to Install, Creating the Boot Disk. **Using LILO boot manager:** Installing LILO, LILO make-file, Updating LILO, Removing or Disabling LILO, Troubleshooting LILO. The Boot Process, Startup Scripts, Shutdown, Halt and reboot, Creating a New Login, Virtual Terminals, Running as root.

Basic Linux Commands : How Linux Commands Work, Command Options & Parameters, Input and Output Redirection, Mian pages, Wildcards : * and ?, Environment Variables, The process status Commands : ps, termination command : kill, the su command, the grep command.

Linux File System : Common types of files, filenames, Inodes, The root directory, How directories are named, Navigating the Linux file System : pwd command, Absolute and relative filenames; cd command, Creating and Deleting files : Cat, Creating Directories, Moving and Copying files, Moving Directories, Removing files and directories, Important directories in the Linux file System : / , /home, /bin, /usr, /usr/bin, /var/spool, /dev, /sbin, /etc.

File and Directory ownership, Groups, Changing group ownership, File Permissions, UMASK Setting, Changing File Permission, Changing directory permissions; Bash : What is Shell ? How the Shell gets Started, The most common Shells;

SECTION B

Shell Scripting: Creating and Executing Shell Programs, Using variables : Assigning a value to a variable, Accessing the value of a variable, Positional Parameters and other Built-In Shell Variables; Special Characters, Conditional Statements : if Statement , case Statement; Iteration Statements : for Statement, while Statement, until Statement, shift Command, select Statement, repeat Statement, Functions.

Editing and Typesetting : Text Editors vi, The vi Editor, Starting vi, vi modes, Inserting Text, Quitting vi, Moving the Cursor, Deleting Text, Copying and Moving Text, Searching and Replacing Text, Setting Preferences.

Configuring the X Window: Xfree86 Software Distribution, Choosing an X Server, Installing Xfree86 Manually, Installing Xfree86 using a Script, Path Environment Variable; Configuring Xfree86; The xconfig and XF86Config Files in Detail: Pathnames, Keyboard Setting, Mouse Definition, Monitor Model, Video Cards, The Xfree86 Server, Testing Xfree86 Configurations, The .xinitrc File.

Linux for System Administrators: System Administration Basics, The root Account, Starting and Stopping the System, Booting from a Floppy, Using LILO to Boot, Shutting Down Linux; Mounting File Systems : Mounting a Floppy, CD-ROM, Creating a New file System, Un-mounting file Systems, Backup and restore: Compressing files with gzip, Using tar and cpio; Setting up your System : Setting the System Name, Using a Maintenance Disk, Forgetting the root Password, Setting the Login Message.

Networking & Network Services: What is TCP/IP? IP Address, Ports, Sockets, Subnets, Routing, Hardware Requirements, Configuring the Network, Configuration Files, Testing and Troubleshooting, The netstart Command, ping, traceroute, Mail, News, NFS, www, FTP, Telnet, DNS.

Network Security: Firewalls.

4. Action Plan of syllabus to be covered (Monthly distribution, Weekly distribution)

LECTURE DISTRIBUTION

LINUX ADMINISTRATION

Section-A

1. **Introduction:** Overview of Linux, Linux's History
2. Advantages of Linux
3. Minimum System Requirements
4. Installing Linux: Choosing Text or Graphics Installation
5. Setting up your Hard Drive
6. Understanding the Swap Space
7. Setting up the mouse, root password and Ethernet
8. Configuration X, Selecting packages to Install
9. LILO, LILO make-file
10. Updating LILO, Removing or Disabling LILO
11. Troubleshooting LILO
12. The Boot Process, Startup Scripts, Shutdown, Halt and reboot
13. Creating a New Login, Virtual Terminal
14. **Basic Linux Commands :** How Linux Commands Work
15. Command Options & Parameters
16. Input and Output Redirection
17. Main pages, Wildcards : * and ?
18. Environment Variables
19. The process status Commands : ps, termination command : kill
20. the su command, the grep command
21. **Linux File System :** Common types of files, filenames, Inodes
22. The root directory, How directories are named
23. Navigating the Linux file System : pwd command
24. Absolute and relative filenames; cd command
25. Creating and Deleting files : Cat, Creating Directories
26. Moving and Copying files, Moving Directories, Removing files and directories
27. Important directories in the Linux file System : / , /home, /bin, /usr, /usr/bin, /var/spool, /dev /sbin, /etc
28. File and Directory ownership, Groups, Changing group ownership
29. File Permissions, UMASK Setting
30. Changing File Permission, Changing directory permissions
31. Bash : What is Shell ? How the Shell gets Started, The most common Shells
MST

Section B

32. **Shell Scripting:** Creating and Executing Shell Programs
33. Using variables : Assigning a value to a variable
34. Accessing the value of a variable

35. Positional Parameters and other Built-In Shell Variables
36. Special Characters
37. Conditional Statements : if Statement , case Statement
38. Iteration Statements : for Statement, while Statement,
39. until Statement, shift Command
40. select Statement, repeat Statement, Functions
41. **Editing and Typesetting** : Text Editors vi
42. The vi Editor, Starting vi, vi modes, Inserting Text
43. Quitting vi, Moving the Cursor
44. Deleting Text, Copying and Moving Text, Searching and Replacing Text
45. Setting Preferences
46. **Linux for System Administrators:** System Administration Basics
47. The root Account, Starting and Stopping the System
48. Backup and restore: Compressing files with gzip
49. TCP/IP, IP Address, Ports, Sockets
50. Subnets, Routing, Hardware Requirements
51. Configuring the Network, Configuration Files
52. Testing and Troubleshooting, The netstart Command
53. ping, traceroute, Mail, News
54. NFS, www, FTP, Telnet, DNS.
55. Network Security: Firewalls.

MST

5. Weekly Lesson Plan

<i>Weekly Lesson Plan</i>				
Date	Class	Subject	Topics covered	Teaching aids used
6-2-2023		Linux	Introduction: Overview of Linux, Linux's History	Whiteboard
7-2-2023			Advantages of Linux	Whiteboard
9-2-2023			Minimum System Requirements	Projector
10-2-2023			Installing Linux: Choosing Text or Graphics Installation	Projector
11-2-2023			Setting up your Hard Drive	Projector

13-2-2023			Understanding the Swap Space	Projector
14-2-2023			Setting up the mouse, root password and Ethernet	Projector
15-2-2023			Configuration X, Selecting packages to Install	Projector
16-2-2023			LILO, LILO make-file	Projector
17-2-2023			Updating LILO, Removing or Disabling LILO	Projector
20-2-2023			Troubleshooting LILO	Projector
22-2-2023			The Boot Process, Startup Scripts,Shutdown, Halt and reboot	Projector
23-2-2023			Creating a New Login,Virtual Terminal	Projector
24-2-2023			Basic Linux Commands : How Linux Commands Work	Projector
27-2-2023			Command Options & Parameters	Whiteboard
28-2-2023			Input and Output Redirection	Whiteboard
1-3-2023			Mian pages, Wildcards : * and ?	Whiteboard
2-3-2023			Environment Variables	Whiteboard
3-3-2023			The process status Commands : ps, termination command : kill	Whiteboard
4-3-2023		Linux	the su command, the grep command	Whiteboard
6-3-2023			Linux File System : Common types of files, filenames, Inodes	Whiteboard
7-3-2023			The root directory, How directories are named	Whiteboard
9-3-2023			Navigating the Linux file System : pwd command	Whiteboard
10-3-2023			Absolute and relative filenames; cd command	Whiteboard
13-3-2023			Creating and Deleting files : Cat, Creating Directories	Whiteboard
14-3-2023			Moving and Copying files,Moving Directories, Removing files and directories	Whiteboard

15-3-2023			Important directories in the Linux file System : / , /home, /bin, /usr, /usr/bin, /var/spool, /dev /sbin, /etc	Whiteboard
16-3-2023			File and Directory ownership,Groups, Changing group ownership	Whiteboard
17-3-2023			File Permissions, UMASK Setting	Whiteboard
20-3-2023			Changing File Permission,Changing directory permissions	Whiteboard
21-3-2023			Bash : What is Shell ? How the Shell gets Started,The most common Shells	Whiteboard
22-3-2023			Shell Scripting: Creating and Executing Shell Programs	Whiteboard
24-3-2023			Using variables : Assigning a value to a variable	Whiteboard
25-3-2023			Accessing the value of a variable	Whiteboard
27-3-2023			Positional Parameters and other Built-In Shell Variables	Whiteboard
28-3-2023			Special Characters	Whiteboard
29-3-2023			Conditional Statements : if Statement , case Statement	Whiteboard
31-3-2023			Iteration Statements : for Statement, while Statement	Whiteboard
1-4-2023			until Statement	Whiteboard
3-4-2023			shiftCommand,select Statement, repeat Statement, Functions	Whiteboard
5-4-2023			Editing and Typesetting : Text Editors vi	Whiteboard
6-4-2023			The vi Editor,Starting vi, vi modes, Inserting Text	Whiteboard
10-4-2023			Quitting vi, Moving the Cursor	Whiteboard
11-4-2023			Deleting Text,Copying and Moving Text,Searching and Replacing Text	Whiteboard
12-4-2023			Setting Preferences	Whiteboard
13-4-2023			Linux for System Administrators: System	Whiteboard

			Administration Basics	
15-4-2023			The root Account, Starting and Stopping the System	Whiteboard
17-4-2023			Backup and restore: Compressing files with gzip	Whiteboard
18-4-2023			TCP/IP, IP Address, Ports, Sockets	Whiteboard
19-4-2023			Subnets, Routing, Hardware Requirements	Whiteboard
20-4-2023			Configuring the Network, Configuration Files	Whiteboard
21-4-2023			Testing and Troubleshooting, The netstart Command	Whiteboard
22-4-2023			ping, traceroute, Mail, News	Whiteboard
24-4-2023			NFS, www, FTP	Whiteboard
25-4-2023			Telnet, DNS.	Whiteboard
28-4-2023			Network Security: Firewalls.	Whiteboard
29-4-2023			Revision	Whiteboard

6. Recommended Reference Books:

1. Tim Parker : Linux Unleashed Third Edition, Techmedia, 1999.
2. Tackett, J : Special Edition using LINUX, PHI.
3. Norton, P. : Complete guide to LINUX, Techmedia.
4. Komarinski, M : LINUX System Administration Handbook, AW.
5. SUMITABHA DAS : UNIX Concepts & Application 2nd Edition, Tata McGraw-Hill

7. Lecture division (Lecture Statement)

CLASS -M.SC IT II+LE, Attendance record						
SUBJECT: Linux Administration						
Total Lectures Delivered=56						
S.NO	Roll No	Student Name	Feb(16)	March (22)	April(18)	Total Lectures Attended
1	10502	Rampy Kaur	15	22	17	54
2	10504	Manpreet Kaur	13	20	15	48
3	10506	Amanjot Kaur	13	19	15	47
4	10509	Sarbjeet Singh	14	20	16	50
5	10510	Lovely Garg	12	19	14	45
6	10512	Mamta Kaur	12	19	15	46
7	10513	Gurdeep Singh	12	19	14	45
8	10514	Khushpreet Singh	13	20	15	48
9	10515	Ramandeep Kaur	13	21	17	51
10	10516	Gurpreet Singh	12	18	14	44
11	10517	Ashish Kumar	14	21	16	51
12	10518	Rajwinder Singh	15	22	17	54
13	20101	Harpreet Singh	15	20	17	52
14	20102	Kulwinder Kaur	12	19	14	45
15	20103	Amritpal	12	18	15	45
16	20104	Geetu Rani	14	18	14	46
17	20105	Mandeep Kaur	13	19	15	47
18	20106	Sarbjeet Kaur	15	21	18	54
19	20107	Amandeep Singh	14	20	17	51
20	20111	Kamalpreet Singh	15	21	18	54
21	20112	Harpreet Singh	15	20	16	51
22	20113	Gurmeet Kaur	13	19	15	47
23	20114	Kulminder Kaur	12	19	14	45
24	20117	Mandeep Kaur	13	18	14	45

8. Detail of Weak and Brilliant Students

LIST OF INTELLIGENT STUDENTS:

10518,10515,10502,10517

LIST OF WEAK STUDENTS:

10514,10516

10. Test Record (MST) QUESTION PAPER

MST 1

Linux Administration

Class: M.SC IT II+LE

SEMESTER-IV

Total Marks: 30 Marks

Note: Attempt any one question each from Section A and B. Section C is compulsory.

Section-A

1. Define Linux with its advantages and history. (9)
2. What are the steps to install linux and its minimum system requirements. (9)

Section-B

3. Explain some basic commands used in Linux (9)
4. Explain the directories used in Linux (9)

Section-C

1. Difference between absolute and relative path (4)
2. Syntax to create an directory (4)
3. Define pwd command (4)

MST 2

LINUX Administration

MSC IT 2+ LE

Semester IV

Max Marks: 70

Time: 3 Hours

Note: The candidates are required to attempt two questions each from section A and section B. Section C is compulsory.

SECTION A

1. Define Linux with history of linux and also the minimum system requirements. (10.5)
2. Explain the process status commands in detail. (10.5)
3. What are conditional statements ? Explain Iteration statements in detail. (10.5)
4. Explain moving and copying of files in linux (10.5)

SECTION B

5. What is Shell Scripting ? How we create and execute shell programs. (10.5)
6. Explain basic commands used in linux in detail. (10.5)
7. Define text editor Vi. Explain Vi Modes. (10.5)
8. What is directory ? Define important directories used in linux file system. (10.5)

SECTION C

9. Define: 14*2=28
- (i) shift command
 - (ii) various shells in linux
 - (iii) How to insert text in Vi editor.
 - (iv) Positional parameters
 - (v) syntax to create a file in linux
 - (vi) CAT command
 - (vii) Repeat statement
 - (viii) How to assign a value to a variable
 - (ix) Absolute and relative file names
 - (x) various file permissions
 - (xi) Modes of Vi
 - (xii) how we set preferences in Vi
 - (xiii) how we can assign value to variable
 - (xiv) Define LILO

Department Of Computer Science			
M.SC IT II+LE Session 2022-23			
MST I Record			
SUBJECT: Linux Administration			
S NO	Roll No	Student Name	MST 1 (30 Marks)
1	10502	RAMPY KAUR	27
2	10504	MANPREET KAUR	26
3	10506	AMANJOT KAUR	25
4	10509	SARBJEET SINGH	26

5	10510	LOVELY GARG	25
6	10512	MAMTA KAUR	25
7	10513	GURDEEP SINGH	25
8	10514	KHUSHPREET SINGH	25
9	10515	RAMANDEEP KAUR	27
10	10516	GURPREET SINGH	25
11	10517	ASHISH KUMAR	28
12	10518	RAJWINDER SINGH	28
13	20101	HARPREET SINGH	28
14	20102	KULWINDER KAUR	25
15	20103	AMRITPAL	26
16	20104	GEETU RANI	26
17	20105	MANDEEP KAUR	26
18	20106	SARBJEET KAUR	28
19	20107	AMANDEEP SINGH	27
20	20111	KAMALPREET SINGH	28
21	20112	HARPREET SINGH	28
22	20113	GURMEET KAUR	26
23	20114	KULMINDER KAUR	25
24	20117	MANDEEP KAUR	25

MST 2

Department Of Computer Science			
M.SC IT II+LE Session 2022-23			
MST II Record			
SUBJECT: Linux Administration			
S NO	Roll No	Student Name	MST 2 (75 Marks)
1	10502	RAMPY KAUR	28
2	10513	GURDEEP SINGH	4
3	10515	RAMANDEEP KAUR	30
4	10517	ASHISH KUMAR	28
5	10518	RAJWINDER SINGH	41
6	20101	HARPREET SINGH	29
7	20106	SARBJEET KAUR	53
8	20111	KAMALPREET SINGH	31
9	20112	HARPREET SINGH	19

11.Split of internal assessment

Department of Computer Science								
M.Sc(IT) -2+LE (Semester- 4) Internal Assessment May 2023								
Subject Name:MS-211:Linux Administration								
Subject Teacher :Amandeep Kaur								
Sr. No	College Rollno	Exam RollNo	Name	Test(18)	Assignment(6)	Attendance(3)	Class Participation / Behaviour(3)	Total(30)
1	10502	303101	RAMPY KAUR	15	6	3	3	27
2	10515	303102	RAMANDEEP KAUR	15	6	3	3	27
3	10504	303103	MANPREET KAUR	14	6	3	3	26
4	10512	303104	MAMTA KAUR	13	6	3	3	25
5	10506	303105	AMANJOT KAUR	13	6	3	3	25
6	10509	303106	SARBJEET SINGH	14	6	3	3	26
7	10518	303107	RAJWINDER SINGH	16	6	3	3	28
8	10510	303108	LOVELY GARG	13	6	3	3	25
9	10514	303109	KHUSHPREET SINGH	13	6	3	3	25
10	10516	303110	GURPREET SINGH	13	6	3	3	25
11	10513	303111	GURDEEP SINGH	13	6	3	3	25
12	10517	303112	ASHISH KUMAR	16	6	3	3	28
13	20101	63344	HARPREET SINGH	16	6	3	3	28
14	20102	63335	KULWINDER KAUR	13	6	3	3	25
15	20103	63346	AMRITPAL	14	6	3	3	26
16	20104	63339	GEETU RANI	14	6	3	3	26
17	20105	63333	MANDEEP KAUR	14	6	3	3	26
18	20106	63331	SARBJEET KAUR	16	6	3	3	28
19	20107	63347	AMANDEEP SINGH	15	6	3	3	27
20	20111	63342	KAMALPREET SINGH	16	6	3	3	28
21	20112	63343	HARPREET SINGH	16	6	3	3	28
22	20113	63338	GURMEET KAUR	14	6	3	3	26
23	20114	63336	KULMINDER KAUR	13	6	3	3	25
24	20117	63334	MANDEEP KAUR	13	6	3	3	25

12.Assignment Record Details

Guru Nanak College Budhlada(Mansa)			
M.Sc IT II_LE Session 2022-23			
Assignment Record			
SUBJECT: Linux			
S NO	Roll No	Student Name	Assignment (10)
1	10502	Rampy Kaur	9
2	10504	Manpreet Kaur	9
3	10506	Amanjot Kaur	8
4	10509	Sarbjeet Singh	8
5	10510	Lovely Garg	8
6	10512	Mamta Kaur	8
7	10513	Gurdeep Singh	8
8	10514	Khushpreet Singh	8
9	10515	Ramandeep Kaur	8
10	10516	Gurpreet Singh	8
11	10517	Ashish Kumar	8
12	10518	Rajwinder Singh	9
13	20101	Harpreet Singh	8
14	20102	Kulwinder Kaur	8
15	20103	Amritpal	8
16	20104	Geetu Rani	9
17	20105	Mandeep Kaur	8
18	20106	Sarbjeet Kaur	8
19	20107	Amandeep Singh	7
20	20111	Kamalpreet Singh	8
21	20112	Harpreet Singh	7
22	20113	Gurmeet Kaur	8

23	20114	Kulminder Kaur	8
24	20117	Mandeep Kaur	7

Best Assignment

