Maharashtra State Board of Technical Education, Mumbai
TEACHING PLAN (TP)

K-1

Academic Year: 2025-26 **Date:** 10/12/2025
Institute Name & Code: K. K. Wagh Polytechnic, Nashik-3 (0078)
Program & Code: Artificial Intelligence & Machine Learning (AN) **Course Code &. Abbr.: 312001** (BLP)
Course Name: Linux Basics **Name of Faculty:** Mr. H. M. Gaikwad
Class: FYAN-Neural **Course Index:** 204 **Semester:** II **Scheme:** K **Total Hrs:** 30

• Teaching-Learning and Assessment Scheme:

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Paper Duration	Assessment Scheme										Total Marks
				Actual Contact Hrs/Week			SLH	NLH			Theory				Based on LL Practical				Based on SL		
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
312001	Linux Basics	BLP	DSC	2	-	2	-	4	2	-	-	-	-	-	25	10	25@	10	-	-	50

Abbreviations: CL- Class Room Learning, TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination

• Course Outcomes (COs) & Theory Learning Outcomes (TLOs):

By learning course, Linux Basics (BLP-312001) First Year students will be able to:

CO No.	TLO No.	Course Outcomes (COs) / Theory Learning Outcomes (TLOs)
CO204.1		**Install Linux operating system**
	TLO 1.1	Describe the History of Linux.
	TLO 1.2	Identify different types of shells
	TLO 1.3	Compare Linux file systems
CO204.2		**Execute general purpose commands of the Linux operating system.**
	TLO 2.1	Execute General purpose commands.
	TLO 2.2	Use of mailx command
	TLO 2.3	Display and change your terminal settings
CO204.3		**Manage files and directories in Linux operating system.**
	TLO 3.1	Explain the file types.
	TLO 3.2	Use absolute and relative pathnames
	TLO 3.3	Execute file and Directory commands.
	TLO 3.4	Compress and archive files
	TLO 3.5	Execute basic file attributes.
	TLO 3.6	Change file and directory permissions.
CO204.4		**Use vi editor in Linux operating system**
	TLO 4.1	Create and modify files using the vi editor.
	TLO 4.2	Use the line editing command
	TLO 4.3	Use the navigation command in vi editor
	TLO 4.4	Search a pattern in vi editor
	TLO 4.5	Explain the Shell's Interpretive Cycle
	TLO 4.6	Use of pattern matching and wildcards
	TLO 4.7	Use of Shell variables
CO204.5		**Write programs using shell script.**
	TLO 6.1	Execute Linux filters.

	TLO 6.2	Execute commands using regular expressions.
	TLO 6.3	Execute shell script programs.

- **Teaching Plan:**

Unit No. (Allotted Hrs.)	TLOs	Title/Topic Details with CO	Plan (From-To & No. of Lectures)	Actual Execution (From-To & No. of Lectures)	Pedagogy used (Teaching Method/ Media)	Remark
1 (4 hrs)		**Unit-1: Introduction to Linux Operating System [CO204.1]**				
	1.1 1.2 1.3	1.1 Introduction to operating System and Linux. 1.2 History, Overview of Linux 1.3 Shell: Bourne, Korn, C shell. 1.4 Linux releases, Linux File Systems (ext) and versions	**18/12/25 To 26/12/25** (04)		Chalk, Board, PPTs, Web References	
2 (6 hrs)		**Unit-2: General Purpose Utilities [CO204.2]**				
	2.1	2.1 cal: The calendar, date: Displaying the system date, echo: Displaying message, printf: an alternative to echo, bc: The calculator, script: Recording your session	**01/01/26 To 16/01/26** (06)		Chalk, Board, PPTs, Web References	
	2.1	2.2 passwd: Changing your password, who: Who are the users?, uname: Knowing your machine characteristics				
	2.2	2.3 Email basics, mailx: The universal mailer				
	2.3	2.4 tty: Knowing your terminal, stty: displaying and setting terminal characteristics				
3 (7 hrs)		**Unit-3: File Management in Linux [CO204.3]**				
	3.1 3.2. 3.3	3.1 The file: Ordinary file, Directory file, Device file, File name, The parent-child relationship, UNIX file system tree, The Unix file system, The home directory pwd: Checking your current directory, cd: Changing the current directory, mkdir: Making directories, rmdir: Removing directories, ls: Listing directory contents 3.2 Absolute pathnames, Relative pathnames	**22/01/26 To 12/02/26** (07)		Chalk, Board, PPTs, Web References	
	3.3	3.3 Handling ordinary files, cat: Displaying and creating files, cp: Copying file, rm: Deleting files, mv: Renaming files, more: Paging output				
	3.3	3.4 The 1p subsystem: printing a file, file: knowing the file types				
	3.3	3.5 wc: Counting lines, words and characters, od: Displaying data in octal, cmp: Comparing two files, comm: What is common?, cliff: Converting one file to other				
	3.4	3.6 gzip and gunzip: Compressing and decompressing files, tar: The archival program, zip and unzip: Compressing and archiving together				
	3.5	3.7 Basic file attributes, is -1: Listing file attributes, the -d option: Listing directory attributes				
	3.6	3.8 File ownership, File permissions, chmod: Changing file permissions, directory permission, Changing file ownership, chown: Changing file owner, chgrp: Changing group owner				
4		**Unit-4: The vi Editor and Shell [CO204.4]**				

(7 hrs)	4.1 4.2	4.1 The vi Editor: vi Command, Input, and Line Editing Modes. 4.2 Creating, Saving and Quitting a File in vi, Managing Editing Modes in vi. 4.3 vi Editing Commands: Common Operations.	**13/02/26 To 06/03/26** (07)		Chalk, Board, PPTs, Web References	
	4.3	4.4 Navigation: Movement in the four direction (h, j, k and 1), Word navigation (b, e and w), Moving to Line extremes (0, I and $), Scrolling ([Ctrl-f], [Ctrl-b], [Ctrl-d] and [Ctrl-u], Absolute Movement (G)				
	4.4	4.5 Searching for a pattern(/ and ?), Repeating the last pattern search (n and N)				
	4.5 4.6	4.6 The Shell: The Shell's interpretive cycle, Shell offerings, Pattern matching: The wild-cards, Escaping and quoting, Redirection: The three standard files, /dev/null and /dev/tty: Two special files				
	4.7	4.7 Pipes, tee: Creating a tee, Common substitution, Shell Variables				
5 (6 hrs)		**Unit-5: Filters, Regular Expressions and Shell Programming [CO204.5]**				
	5.1	5.1 Simple Filters: The sample database, pr: Paginating files, head: Displaying the beginning of a file, tail: Displaying the end of a file, cut: Splitting a file vertically, paste: Pasting files, sort: Ordering file, uniq: Locate repeated and non-repeated lines, tr: Translating characters	**12/03/26 To 27/04/26** (06)		Chalk, Board, PPTs, Web References	
	5.2	5.2 Filters using regular expressions, grep: Searching for a pattern, Basic regular expression (BRE)- An introduction, Extended regular expressions (ERE) and egrep, sed: The stream editor				
	5.3	5.3 Essential Shell programming, Shell scripts, read: Making scripts interactive, Using command line arguments, exit and Exit status of command, The logical operators && and II- Conditional executions				
	5.3	5.4 The if conditional, Using test and [ ] to evaluate expressions, the case conditional, expr: Computation and string handling, $0: Calling a script by different names				
	5.3	5.5 while: Looping, for: Looping with a list				
30 Hrs.		**Total**	**30 Hrs.**			

- **COs-POs & PSOs Matrix:**

Course Outcomes (COs)	Programme Outcomes (POs)							PSOs	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2
CO204.1	3	2	2	1	1	-	3	2	2
CO204.2	3	-	1	2	1	-	3	2	2
CO204.3	3	-	1	3	1	-	3	2	2
CO204.4	3	2	2	3	1	-	3	2	2
CO204.5	3	2	2	3	1	-	3	2	2

Legends: High:03, Medium:02, Low:01, No Mapping: -

PSO1: Apply fundamental concepts of Computer Engineering and Artificial Intelligence and machine learning to solve technical problems.

PSO2: Implement the domain knowledge to achieve successful career as an engineering professional.

- **Formative Assessment:**
  - For formative assessment of laboratory learning 25 marks
  - Each practical will be assessed considering 30% weightage to process, 70% weightage to product.

- **Summative Assessment:**
  - End semester summative assessment of 25 marks for laboratory learning

- **References:**

1. Suggested Books:

Sr. No	Author	Title	Publisher
1	Richard Petersen	Linux The Complete Reference	McGraw Hill, 6th edition
2	Richard Blum	Linux command line and shell scripting	Wiley India
3	Prof. Dayanand Ambawade	Linux Lab: Hands on Linux	Dreamtech Press
4	Sumitabha Das	Unix Concepts and Applications	McGraw-Hill Education (India) Pvt Limited, 2006

2. Learning Web Sites:

Sr. No.	Link /Portal	Description
1	https://maker.pro/linuthutorial/basic-linux-commands-for-beginners	Linux Basic Commands
2	https://www.guru99.com/must-know-linux-commands.html	Linux Basic Commands
3	https://www.shellscript.sh/	Shell Scripts and Programs
4	https://www.tutorialspoint.comfunix/shell_scripting.html	Shell Scripts and Programs examples
5	https://spoken-tutorial.org/tutorial	Online Course

3. Learning URLs of referenced YouTube Videos:

Sr. No.	URL of YouTube Video	Topic
1	https://youtu.be/u6ZH2099sM4	Introduction to Linux OS
2	https://www.youtube.com/playlist?list=PLS1QulWo1RIb9WVQGJ_vh-RQusbZgO_As	Linux command line Tutorials
3	https://youtu.be/Byx4sgLR88E	Various Linux commands
4	https://youtu.be/HgMHAbg4TUk	Chmod command-Linux file permissions
5	https://youtu.be/6GUbNoNO1ac	How to use vi editor in Linux?
6	https://youtu.be/DTC5V5GyaNk	Linux pipes & filter commands
7	https://youtu.be/aJcglXZpoGI	Basics of shell scripting
8	https://youtu.be/ZtV3qKN0goQ?si=Rp6vHncTY1-Vha5J	Loops in shell scripting
9	https://youtu.be/pH3ROfiNjEw?si=ip5pnhxemb_Qy08D	Decision Making in shell scripting
10	https://youtu.be/DexiuLYs4MA	Linux Wildcards With Simple Examples

4. Tools used:, MKCL LMS-Learn Live, YouTube

Mr. H.M. Gaikwad
(Subject Teacher)

Mrs. R. Y. Thombare
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