

Maharashtra State Board of Technical Education, Mumbai

LABORATORY PRACTICAL PLANNING

K2-A

Academic Year: 2025-26

Date: 12/12/2025

Institute Name & Code: K. K. Wagh Polytechnic, Nashik-3 (0078)

Program & Code: Artificial Intelligence & Machine Learning (AN)

CourseCode&Abbr.: 316007 (NMA)

Course Name: Network Management and Administration

Name of Faculty: Ms. H.M.Somaiya

Class: TYAN

Course Index: 605

Semester: VI

Scheme: 'K'

Total Hrs: 30

● Course Outcomes (COs):

By learning course Network Management and Administration 316007 (NMA) Third Year students will be able to:

- CO605.1 - Explain critical features of Windows Server and Linux Operating System.
- CO605.2 - Configure Active Directory for managing objects.
- CO605.3 - Configure different web services.
- CO605.4 - Create virtual environment.
- CO6055 - Apply Backup and Recovery services.

● Teaching-Learning and Assessment Scheme:

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme											
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH		SA-TH		Total		FA-PR				
Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min										
316007	NETWORK MANAGME NT AND ADMINISTR ATION	NMA	AEC	2	-	4	-	6	3	-	-	-	-	-	25	10	25 @	10	-	-	50

Abbreviations: CL CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, SLA - Self Learning Assessment

● Laboratory Learning Outcome (LLO):

- LLO 1.1 Install Network Operating System.
- LLO 2.1 Install device drivers.
- LLO 2.2 Uninstall device drivers .
- LLO 3.1 Install Active Directory for creating various objects.
- LLO 4.1 Implement Domain Controller.
- LLO 5.1 Create Domains, Tree Domains and Forests to manage objects.
- LLO 6.1 Deploy trust relationship of objects across domains.
- LLO 7.1 Create and manage user accounts.
- LLO 8.1 Create and manage groups to organize users.
- LLO 9.1 Add computers with access rights in domain.
- LLO 10.1 Create Organizational Units.

LLO 11.1 Assign permissions to specific users and groups under OU.
 LLO 12.1 Create Group Policy Object.
 LLO 12.2 Link Group Policy Object (GPO) to OU.
 LLO 13.1 Manage GPO.
 LLO 14.1 Implement Backup and Restore GPOs.
 LLO 15.1 Configure HTTP services.
 LLO 15.2 Configure FTP Server.
 LLO 16.1 Assign permissions to access web resources.
 LLO 17.1 Install Domain Name Server (DNS).
 LLO 18.1 Configure DNS Zones.
 LLO 18.2 Assign DNS Records.
 LLO 18.3 Integrate DNS Zones to Active Directory.
 LLO 19.1 Install DHCP.
 LLO 19.2 Configure DHCP Scope.
 LLO 20.1 Install Remote login utility.
 LLO 21.1 Install Hyper-V.
 LLO 22.1 Create virtual machine.
 LLO 23.1 Install Remote login utility.
 LLO 24.1 Create Disk volumes.
 LLO 24.2 Manage Disk volumes.
 LLO 25.1 Create Disk volumes.
 LLO 26.1 Configure RAID.
 LLO 27.1 Configure Server Backup.
 LLO 28.1 Configure System State Backup.
 LLO 29.1 Implement Volume Shadow Copy Service.

● **Laboratory Plan:**

Sr. No.	CO	LLO	Name of Practical	Planned Date	Performance Date	Remarks	Related Self Learning (if any)
1.	CO605.1	1.1	Installation of Network Operating System on a. Windows Server b. Linux	A-16/12/2025 B-17/12/2025 C-15/12/2025			
2.	CO605.2	2.1 2.2	Install device drivers a. Install and configure hardware device drivers b. Uninstall device drivers	A-19/12/2025 B-20/12/2025 C-18/12/2025			
3.	CO605.2	3.1	Install the Active Directory on a Windows Server	A-23/12/2025 B-24/12/2025 C-22/12/2025			

4.	CO602.2	5.1	Creating Domains, Tree Domains and Forests on Windows Server	A-27/12/2025 B-26/12/2025 C-29/12/2025			
5.	CO602.2	7.1	Creating user accounts a. Create Domain users in Windows Server with rights and permissions b. Create user accounts in Linux using command-line / GUI with rights and permissions	A-30/12/2025 B-31/12/2025 C-01/01/2026			
6.	CO605.2	9.1	Add computer accounts in the domain using Windows Server	A-02/01/2026 B-03/01/2026 C-05/01/2026			
7.	CO605.2	10.1	Create Organizational Units (OUs) in Windows Server	A-06/01/2026 B-07/01/2026 C-08/01/2026			
8.	CO605.2	11.1	Delegate administrative control over an OU to specific users or groups in Windows Server	A-09/01/2026 B-10/01/2026 C-12/01/2026			
9.	CO605.2	12.1 12.2	Create a Group Policy Object (GPO) and link to OU in Windows Server	A-13/01/2026 B-14/01/2026 C-15/01/2026			
10.	CO605.2	13.1	Perform operations on GPO in Windows Server a. Modify existing GPO b. Copy existing GPO c. Delete existing GPO	A-16/01/2026 B-17/01/2026 C-19/01/2026			
11.	CO605.2	14.1	Backup and Restore GPOs in Windows Server	A-20/01/2026 B-21/01/2026 C-22/01/2026			
12.	CO605.3	15.1 15.2	Install the Web Server to configure a. HTTP Server on Windows and Linux Server b. FTP Server Windows and Linux Server	A-23/01/2026 B-24/01/2026 C-02/02/2026			

13.	CO605.3	16.1	Set the correct directory permissions for the website to allow proper access to web applications hosted on a. Windows Server b. Linux Server	A-30/01/2026 B-31/01/2026 C-05/02/2026			
14	CO605.3	17.1	Install the DNS on a. Windows Server b. Linux Server	A-03/02/2026 B-04/02/2026 C-09/02/2026			
15	CO605.3	18.1 18.2 18.3	Create and configure DNS zones on a. Windows Server b. Linux	A-06/02/2026 B-07/02/2026 C-12/02/2026			
16	CO605.3	19.1 19.2	Install and configure DHCP server on a. Windows Server b. Linux Server	A-10/02/2026 B-11/02/2026 C-16/02/2026			
17	CO605.3	20.1	Install telnet / SSL services on a. Windows Server b. Linux Server	A-13/02/2026 B-14/02/2026 C-23/02/2026			
18	CO605.4	21.1	Install the Hyper-V to enable virtualization on Windows Server.	A-17/02/2026 B-18/02/2026 C-26/02/2026			
19	CO605.4	22.1	a.Create a virtual machine to run guest operating systems on Hyper-V using Windows Server b.Manage VMs Using Power Shell using Windows Server	A-20/02/2026 B-21/02/2026 C-02/03/2026			
20	CO605.4	23.1	Create a virtual machine to run guest operating system on Linux	A-24/02/2026 B-25/02/2026 C-05/03/2026			
21	CO605.4	25.1	Create Disk volumes in Linux a Mount and Unmount Local Disks	A-27/02/2025 B-28/02/2025 C-09/03/2025			

			b Create Partition and Logical Volume				
22	CO605.5	26.1	Configure RAID (0-3)	A-03/03/2026 B-04/03/2026 C-12/03/2026			
23	CO605.5	27.1	Install/ Configure Server Backup in a. Windows Server b. Linux Server	A-06/03/2026 B-07/03/2026 C-16/03/2026			
24	CO605.5	28.1	Configure and perform a System State Backup to protect server configurations in Windows Server	A-11/03/2026 B-12/03/2026 C-19/03/2026			

● **Formative Assessment Criteria:**

Performance Indicators		Weightage
Process Related (15 Marks)		60%
1	Practical Implementation with specified time	40%
2	Handling of Network components	10%
3	Follow ethical practices	10%
Product Related (10 Marks)		40%
1	Correctness of Practical	15%
2	Timely Submission	15%
3	Answer to sample questions	10%
Total (25 Marks)		100%

● **Rules for Formative Assessment:**

1. Formative assessment of each practical is based on Process related (15 marks) and Product related (10 marks) - Total out of 25 marks as per the assessment scheme prescribed in manual given by MSBTE,
2. Final Formative Assessment (F.A.) of 25 marks is calculated as follows:

$$\text{FA Marks} = ((\text{Total obtained marks}) \times 25) / (25 \times \text{Total Number of practicals})$$
3. Practical Examination will be displayed on Notice board prior to examination.

● **Summative Assessment:**

There is no summative assessment for laboratory learning

● **Practical wise LLO-CO Mapping:**

PR. No.	LLO	CO605.1	CO605.2	CO605.3	CO605.4	CO605.5
Practical 1	1.1	✓				
Practical 2	2.1 2.2	✓				
Practical 3	3.1		✓			
Practical 4	5.1		✓			
Practical 5	7.1		✓			
Practical 6	9.1		✓			

Practical 7	10.1		✓			
Practical 8	11.1		✓			
Practical 9	12.1 12.2		✓			
Practical 10	13.1		✓			
Practical 11	14.1		✓			
Practical 12	15.1 15.2			✓		
Practical 13	16.1			✓		
Practical 14	17.1			✓		
Practical 15	18.1 18.2 18.3			✓		
Practical 16	19.1 19.2			✓		
Practical 17	20.1				✓	
Practical 18	21.1				✓	
Practical 19	22.1					✓
Practical 20	23.1					✓
Practical 21	25.1					✓
Practical 22	26.1					✓
Practical 23	27.1					✓
Practical 24	28.1					✓

● References:

Books:

Sr.No	Author	Title	Publisher with ISBN Number
1	Jordan Krause	Mastering Windows Server 2022	Packt Publishing; 4th ed. edition ISBN-10 - 1837634505
2	Bekim DautiBekim Dauti	Windows Server 2022 Administration Fundamentals	Packt Publishing; 3rd ed. edition ISBN-1803232153
3	Alexandru Calcatinge	Mastering Linux Administration	Packt Publishing; 2nd ed. edition, ISBN-10-1837630690
4	Wale Soyinka	Linux Administration A Beginner's Guide	McGraw Hill Education, ISBN-10-1259061183

Web sites :

Sr.No	Link / Portal	Description
1	https://youtu.be/uFWaxzk6VfU?si=1dKiDehJ1RrCdjYu	Practical guidance
2	https://learn.microsoft.com/en-us/windows-server/get-started/get-started-with-windows-server	Windows Server Administration
3	https://www.tutorialspoint.com/linux_admin/index.htm	User Management, FTP, Disk Management, Backup and Recovery
4	https://www.serveracademy.com/blog/active-directory-101-a-step-by-step-tutorial-for-beginners/	Active Directory Object Management
5	https://learn.microsoft.com/en-us/windows-server/virtualization/hyper-v/get-started/install-hyper-v?pivot=windows	Hyper-V

Tools : Windows server 2022, VMWare

Ms. H. M. Somaiya
(Name & signature of Staff)

Mrs. R. Y. Thombare
(Name & signature of HOD)

CC: 1. Lab File 2. Course File-NMA 3. Notice Board-AN Lab-01 4. Formative Assessment