**20MCA136 – NETWORKING & SYSTEMADMINISTRATION LAB**

*Lab Report Submitted By*

**N AMAL THOMSON**

**Reg. No.: AJC22MCA-2065**

*In Partial fulfilment for the Award of the Degree of*

**MASTER OF COMPUTER APPLICATIONS (2 Year)(MCA)**

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY **

**AMAL JYOTHI COLLEGE OF ENGINEERING**

**KANJIRAPPALLY**

[Affiliated to APJ Abdul Kalam Technological University, Kerala. Approved by AICTE, Accredited by NAAC with ‘A’ grade. Koovapally, Kanjirappally, Kottayam, Kerala – 686518]

**2022-2023**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**AMAL JYOTHI COLLEGE OF ENGINEERING**

**KANJIRAPPALLY**

****

**CERTIFICATE**

This is to certify that the lab report, “**20MCA136NETWORKING& SYSTEM ADMINISTRATION LAB”** is the bonafide work of **N AMAL THOMSON (AJC22MCA-2065)** in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications under APJ Abdul Kalam Technological University during the year **2022-23.**

Ms. Ankitha Philip Rev. Fr. Dr. Rubin Thottupurathu Jose

**Lab In- Charge**   **Head of the Department**

**Internal Examiner**  **External Examiner**

| **Course Code** | **Course Name** | **Syllabus Year** | **L-T-P-C** |
| --- | --- | --- | --- |
| 20MCA136 | Networking & System Administration Lab | 2020 | 0-1-3-2 |

****

**VISION**

To promote an academic and research environment conducive for innovation centric technical education.

**MISSION**

MS1 - Provide foundations and advanced technical education in both theoretical and applied Computer Applications in-line with Industry demands.

MS2 - Create highly skilled computer professionals capable of designing and innovating real life solutions.

MS3 - Sustain an academic environment conducive to research and teaching focused to generate up-skilledprofessionals with ethical values.

MS4 - Promote entrepreneurial initiatives and innovations capable of bridging and contributing withsustainable, socially relevant technology solutions.

**COURSE OUTCOME**

| **CO** | **Outcome** | **Target** |
| --- | --- | --- |
| CO1 | Install and configure common operating systems in virtual environment. | 60 |
| CO2 | Perform system administration tasks including network configurations, user creations and trouble shooting . | 65 |
| CO3 | Install and manage servers for web applications. | 60 |
| CO4 | Write shell scripts required for system administration. | 60 |
| CO5 | Acquire skill sets required for a DevOps. | 60 |

**COURSE END SURVEY**

| **CO** | **Survey Question** | **Answer Format** |
| --- | --- | --- |
| CO1 | At what extend you are able to install and configure commonoperating systems. | Excellent/Very Good/Good  Satisfactory/Needs improvement |
| CO2 | At what extend you are able to perform system administrationtasks. | Excellent/Very Good/Good  Satisfactory/Needs improvement |
| CO3 | At what extend you are able to install and manage servers for webapplications. | Excellent/Very Good/Good  Satisfactory/Needs improvement |
| CO4 | At what extend you are able to write shell scripts required forsystem administration. | Excellent/Very Good/Good  Satisfactory/Needs improvement |
| CO5 | At what extend you are able to acquire skill sets required for a  DevOps. | Excellent/Very Good/Good  Satisfactory/Needs improvement |



**CONTENT**

| **Sl. No.** | **Experiment** | **Date** | **CO** | **Page No.** |
| --- | --- | --- | --- | --- |
| **1** | Introduction to Computer hardware: Physical identification of major components of a computer system such as mother board, RAM modules, daughter cards, bus slots, SMPS, internal storage devices,interfacing ports. Specifications of desktop and server class computers. Installation of common operating systems for desktop and server use. | 27-03-2023 | CO1 | 1 |
| **2** | Study of a terminal based text editor such as Vim or Emacs. Basic Linux commands, familiarity with following commands/operations expected 1. man 2. ls, echo, read 3. more, less, cat, 4. cd, mkdir, pwd, find 5. mv, cp, rm 6. wc, cut, paste 7. head, tail, grep, expr 8 chmod, chown 9. useradd, usermod, userdel, passwd 10. df,top, ps 12 ssh, ssh-keygen | 06-03-2023, 07-03-2023, 13-03-2023, 14-03-2023, 20-03-2023, 21-03-2023 | CO2 |  |
| **3** | File system hierarchy in a common Linux distribution, file and device permissions, study of system configuration files in /etc, familiarizing log files for system events, user activity, network events. | 10-07-2023 | CO2 |  |
| **4** | Shell scripting: study bash syntax, environment variables, variables, control constructs such as if, for and while, aliases and functions, accessing command line arguments passed to shell scripts.  1. Write a shell script to count lines and words in a file 2. Shell Script to check a number is even or odd 3. Shell script to check whether a number is positive or negative 4. Shell script to find the greatest of three numbers 5. Shell Script to demonstrate String Operators 6. Shell Script to analyze people of certain age groups who are eligible for getting a suitable job if their condition and norms get satisfied using nested if statement. 7. Write a shell script to display the capital of a state using case…esac statement. 8. Write a shell script to count the number in reverse direction. | 28-03-2023, 03-04-2023, 04-04-2023, 11-04-2023, 18-04-2023, 27-06-2023 | CO4 |  |
| **Sl. No.** | **Experiment** | **Date** | **CO** | Page No. |
| **4** | 9. Write a shell script to check whether the number is palindrome or not 10. Write a shell script to check whether a given number is Armstrong or not 11. Write a shell script to check whether a number is prime or not 12. Write a shell script for factorial of a number 13. Write a shell Script to print Fibonacci series 14. Write a shell script to check if the current year is a leap year or not | 28-03-2023, 03-04-2023, 04-04-2023, 11-04-2023, 18-04-2023, 27-06-2023 | CO4 |  |
| **5** | Install latest version of Ubuntu on a virtual box | 05-06-2023 | CO1 |  |
| **6** | Installation and configuration of LAMP stack. Deploy an open source application such as phpmyadmin | 26-06-2023 | CO3 |  |
| **7** | Build and install software from source code, familiarity with make and cmake utilities expected. 1. Write a program to find factorial of a number using make utility 2. Write a program to add two numbers using cmake utility | 04-07-2023, 11-07-2023 | CO4 |  |
| **8** | Introduction to command line tools for networking IPv4 networking, network commands: ping route traceroute, nslookup, ip. | 20-06-2023, 24-07-2023 | CO5 |  |
| **9** | Analyzing network packet stream using tcpdump and wireshark. Perform basic network service tests using nc. | 20-06-2023 | CO5 |  |
| **10** | Insatllation of KVM and perform basic KVM Commands | 12-06-2023, 13-06-2023 19-06-2023 | CO3 |  |
| **11** | Docker, installation and deployment. | 04-07-2023 | CO3 |  |