

CAREER ORIENTED PROGRAMMES (COP)

SYLLABUS – 2017

**Under
CHOICE BASED CREDIT SYSTEM**



Since 1951

**PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE
JAMAL MOHAMED COLLEGE (AUTONOMOUS)**

College with Potential for Excellence

Re-accredited (3rd Cycle) with 'A' Grade by NAAC

TIRUCHIRAPPALLI – 620 020

Department : COMPUTER SCIENCE
Name of the course : COMPUTER HARDWARE AND NETWORKING ADMINISTRATION
 (UGC Approval No : F.No. 4-148/2005 (COP), dt.16.12.2004]

COURSE CODE	COURSE	COURSE TITLE	TEACHING HOURS	CREDIT	CIA MARKS	SE MARKS	TOTAL MARKS
CERTIFICATE COURSE							
17CSCT1	CORE I	Basic Computer Hardware	150	10	25	75	100
17CSCT2	CORE II	System Assembly Maintenance and Troubleshooting	150	10	25	75	100
17CSCT3P	CORE III	PC assembly and Troubleshooting Lab	150	10	25	75	100
TOTAL			450	30	75	225	300
DIPLOMA PROGRAMME							
17CSDM1	CORE I	Novell Netware Administration	150	10	25	75	100
17CSDM2	CORE II	Windows Administration	150	10	25	75	100
17CSDM3P	CORE III	Networking Lab – I	150	10	25	75	100
TOTAL			450	30	75	225	300
GRAND TOTAL			900	60	150	450	600
ADVANCED DIPLOMA PROGRAMME							
17CSAD1	CORE I	LINUX Administration	150	10	25	75	100
17CSAD2	CORE II	Internet Server Administration	150	10	25	75	100
17CSAD3P	CORE III	Networking Lab – II	150	10	25	75	100
TOTAL			450	30	75	225	300
GRAND TOTAL			1350	90	225	675	900

* Practical Examinations will be conducted at the end of the year

CORE – I
BASIC COMPUTER HARDWARE

Course Code : 17CSCT1
Hours/Week : 10
Credit : 10

Max. Marks : 100
Internal Marks : 25
External Marks : 75

Objective:

To provide basic knowledge in electronic devices, computer architecture, computer hardware, and networking devices.

UNIT-I

30 hours

Basic Electronics : Resistors - Capacitors - Diodes - Transistors - FET - Transformers - Inductance - Filter Circuits - Rectifiers - Integrated Circuits - #Power Supplies#.

UNIT-II

30 hours

PC Architecture : The Case - The Power Supply - The Motherboard - Architecture - The Processor/CPU - Architecture - Memory - #RAM# - Storage Devices - Adapter Cards - Display Devices - Ports and Cables.

UNIT-III

30 hours

Input/Output Hardware : Keyboard - Organisation - Keyboard Types - Mouse - Mouse Types - Scanners - Digital Camera - Monitor - Monitor Types - Printers - Printer Types - Hard Disk Drive - Floppy Disk Drive - #CD-ROM Drive# - DVD-Drive.

UNIT-IV

30 hours

Networking Fundamentals - LAN & WAN - Network Components - Topologies - Communication - Architecture - Network Media - #Network Interface Card# - Media Access Methods

UNIT – V

30 hours

Network Connectivity devices – Repeaters – Hubs/Switches - Bridges - Routers – Gateways – #WIFI# – Bluetooth – Networking and the Internet.

..... # self-study portion.

Text Books :

1. Albert P. Malvino, Basic Electronics, TMH, 5th Edition, 1998.
UNIT I : Chapter 1, 2, 3, 4, 5
2. David Groth, A+ Complete Study Guide, Sybex, Third Edition, 1999.
UNIT II : Chapter 1, 2
UNIT IV : Chapter 5
UNIT V : Chapter 5
3. Manahar Lotia & Others, Modern Computer Hardware Course, BPB, First Edition, 2004.
UNIT III : Chapter 7, 8, 9, 10, 11, 12

Books for Reference :

1. N. Mathivanan, Microprocessors, PC Hardware and Interfacing, PHI, 2003.

CORE - II
SYSTEM ASSEMBLY, MAINTENANCE & TROUBLE SHOOTING

Course Code : 17CSCT2
Hours/Week : 10
Credit : 10

Max. Marks : 100
Internal Marks : 25
External Marks : 75

Objective:

To provide knowledge in system assembly, maintenance, and trouble shooting.

UNIT – I

30 hours

Building a PC : Gathering Tools - Gathering Parts - Preparing the Motherboard -Installation of the Motherboard, the Power supply, Storage Devices, Expansion Cards -#Connecting External Peripherals# - Configuring CMOS

UNIT –II

30 hours

Backup Troubleshooting - BIOS Upgrade Troubleshooting - Troubleshooting CD Drives - CMOS Maintenance and Troubleshooting - Troubleshooting CPU Problems -Troubleshooting a Drive Adapter - Troubleshooting DVD Drives - #Troubleshooting Cooling Problems# - Floppy Drive and HDD Troubleshooting.

UNIT – III

30 hours

Keyboard Maintenance and Troubleshooting - Memory Troubleshooting -Troubleshooting Pointing Devices - Motherboard Troubleshooting - #Parallel Port Troubleshooting# - Plug-and-Play Configuration and Troubleshooting

UNIT – IV

30 hours

Troubleshooting Power Protection Devices - Troubleshooting Power Supplies and Power Management -Troubleshooting the SCSI System - Troubleshooting Sound Boards and Video Adapters. Installing Speakers/Headphones - Installing the Operating System -Removal and Replacement Procedures - Upgrading PC Components - Installing PC Peripherals - #Installing Network/Modem Connections#

UNIT – V

30 hours

Software Troubleshooting - #DOS Troubleshooting# - Windows Troubleshooting -Optimizing PC Performance - Preventing Electrostatic Discharge - Maintaining Safety -Environmental Concerns - Cleaning Systems.

self-study portion

Text Book:

1. David Groth, A+ Complete Study Guide, Sybex , Third Edition, 1999.

UNIT I : Chapter 8,

UNIT V : Chapter 9,10

2. Stephen J. Bigelow, *PC Troubleshooting & Repair The Ultimate Reference*, Dreamtech, Second Edition,1999.

UNIT II : Chapter 4, Chapter 6 ,Chapter 8, Chapter 10, Chapter 12, Chapter 14, Chapter 15 , Chapter 18 ,Chapter 19, Chapter 20

UNIT III : Chapter 22 , Chapter 23, Chapter 24, Chapter 26, Chapter 27, Chapter28

UNIT IV : Chapter 29, Chapter 30, Chapter 32, Chapter 34, Chapter 35 Chapter 14, Chapter 8 (A+ Complete Reference)

Books for Reference :

1. Stephen J. Bigelow, *Troubleshooting, Maintaining and Repairing PCs*, Osborne/McGraw-Hill, 5th Edition, 2001.

CORE- III
PC ASSEMBLY AND TROUBLESHOOTING LAB

Course Code : 17CSCT3P
Hours/Week : 10
Credit : 10

Max. Marks : 100
Internal Marks : 25
External Marks : 75

1. Identification of basic electronics components.
2. Power supply functions and operations.
3. Identification and function of Motherboards, CPUs and RAMs.
4. Identification and function of Storage Devices (FDD, SCSI-HDD, CD-ROM, and DVD)
5. Identification and function of adapter cards (Video, Sound, Ethernet, Modem)
6. Identification and function of Ports and Cables.
7. Identification and function of input and output devices (Keyboard, Mouse, Monitor, Printer).
8. Assembling a PC

- Gathering Parts
- Installing the Motherboard
- Installing the Power supply
- Installing Storage Devices
- Installing Expansion cards
- Installing other external Peripherals
- Connecting the Power, Testing and Configuring CMOS
- Installing Network/Modem connections
- Installing Speakers/Headphones

9. Removing and replacing the components
10. Installing the operating system (DOS, Windows 98, Windows 2000, Windows-XP)
11. Upgrading PC Components
12. Hardware Troubleshooting

- POST Routines
- BIOS problems
- Power supply problems
- Motherboard problems
- Hard disk problems
- Keyboard and Mouse problems
- Monitor problems
- Floppy Drive problems
- Sound Card problems
- Printer problems
- Other Peripheral problems

13. Software Troubleshooting (DOS, Windows)

CORE - I
NOVELL NETWARE ADMINISTRATION

Course Code : 17CSDM1
Hours/Hours : 10
Credit : 10

Max. Marks : 100
Internal Marks : 25
External Marks : 75

Objective:

To provide knowledge in the basic concepts of networking and network administration.

UNIT - I

30 hours

The Client - Server Model - Four Main Components of the Netware v3.x Operating System - The Netware Loader - The Netware Kernel - The Netware Scheduler -Structure of an IPX Packet - The NLM Environment - Application Services - #print Services# - Architecture Summary.

UNIT - II

30 hours

Protocol and workstation support - Multiple Name Spaces - Media-Level Protocols -Netware's Transport and Service Protocols - Network Topologies - Cabling Types -General Cabling Concepts- Ethernet Cabling Concepts - #Token# - Ring Cabling Concepts

UNIT - III

30 hours

Installing Netware 3.x on the Server - Loading Netware Disk Drivers - Running the INSTALL NLM - Creating Netware Volumes - Copying the System and Public Files -Loading Server LAN Drivers - Checking Driver Parameters with the CONFIG Command - Loading NLMS and Editing Server Boot Files - Creating the Server Boot Files - #Editing the Server Boot Files#.

UNIT - IV

30 hours

Netware Directory Services - Netware 4 Enhanced File System - Netware 4 Security -Netware 4 Utility Management - Netware 4 Configuration - Netware 4 Management -Netware 4 Printing - Other Netware 4 Features - Understanding NDS - NDS Objects -NDS Naming - NDS Partitioning - #Time Synchronization#.

UNIT - V

30 hours

Netware 4 Simple Installation - Netware 4 Custom Installation - Installing other stuff -Netware 4 Configuration - Establishing Workstation Connectivity - Login Scripts -Creating the Menu System - Installing Network Applications -#E-mail#.

self-study portion.

Text Book:

1. David James Clarke, Novell's Study Guide for Netware 4.1, Novell Press, Comdex Computer Publishing, 2nd Edition, 1996.
UNIT IV : Chapter 1, 2
UNIT V : Chapter 6, 12
2. Michael Day, Ken Neff, Troubleshooting Netware for the 386, BPB, First Edition, 1993.
UNIT I : Chapter 1
UNIT II : Chapter 3,4
UNIT III : Chapter 5,6,7

Books for Reference :

1. Warren Wyrostek, Novell Netware 6.5 CNA, Pearson IT Certification, 2005.

CORE - II

WINDOWS ADMINISTRATION

Course Code : 17CSDM2

Hours/Week : 10

Credit : 10

Max. Marks : 100

Internal Marks : 25

External Marks : 75

Objective:

To impart knowledge in windows NT, Windows server, DNS, and managing users and groups.

UNIT – I

30 hours

Overview of NT, Profile Basics - understanding client / server model - windows NT differs from windows 98, windows 2000 - setting up the drivers - #setting up the driver card# - setting up the server for FAT and convert - choosing and NT partition -trust relationship.

UNIT –II

30 hours

Windows Server 2000 Architecture , Availability services , Hardware support and plug and play, internet services - #Understanding Kerberos# - TCP/IP Basics(IPV4) Setting up TCP/IP - Understanding and using IPV6.

UNIT – III

30 hours

Windows Server Active Directory - Why do we need directories , What is active directory - Element of Active Directory - The Active directory database structure . Active Directory Physical Architecture -#Naming Conventions# - Domain object -Tree - Forests, Trusts.

UNIT – IV

30 hours

Basic Concepts of DNS - DHCP understanding DHCP, WINS, Administration Planning - Delegating admin - Delegating Forests, trees and Organizational unit -#Troubleshooting concepts ping, Ipconfig, Net state, Hostname , Tracert,ARP, orbstat, NS lookup#.

UNIT – V

30 hours

Managing users and groups - Architecture group policy - #Password Policy, Account lockout Policy, Audit Policy, Event log, Locking down desktop, customizing login/logoff, controlling the start menu , folder redirection#.

self-study portion

Test Books:

1. Alan R. Carter, Installing, Configuring and Administering Windows 2000 Professional Windows 2000 server Windows 2000 Networking Infrastructure Windows 2000 Directory Services, Wiley Dreamtech India, 2005.

UNIT II : Chapter 1, 16

UNIT III : Chapter 2

UNIT V : Chapter 9, 10

2. Kathy Ivens, Kenton Gardinier, The Complete Reference Windows 2000, TMH, 2000.

UNIT I : Chapter 1, 2

3. William Bosewell, Inside Windows Server 2003, Pearson Education, First Edition, 2003.

UNIT IV : Chapter 4, 5

Books for Reference:

1. Tom Carpenter, Microsoft Windows Server Administration Essentials, Sybex 1st Edition, 2011.

CORE III - NETWORKING LAB - I
(NOVELL NETWARE AND WINDOWS ADMINISTRATION)

Course Code : 17CSDM3P
Hours/Week : 10
Credit : 10

Max. Marks : 100
Internal Marks : 25
External Marks : 75

Novell Netware Administration

1. Steps for Server Installation
2. Choosing to Boot Netware from a DOS Partition
3. Creating DOS Partition
4. Preparing the Server and Booting with DOS
5. Loading Netware and Deleting Existing Partitions
6. Creating New DOS partition using FDISK Command
7. Formatting the DOS partition
8. Installing Netware v3.11 on the Server
9. Loading Netware Disk Drivers and Setting up Netware Partitions
10. Creating Netware Volumes and Copying the System and Public Files
11. Loading LAN Drivers, Creating and Editing the Server Boot Files
12. Security Concepts and Setting up Netware Security
13. Utilities for Finding Security Problems
14. Netware User and Group Concepts
15. Creating Login Scripts
16. Setting up Netware Printing using the Netware Printing Utilities.

Windows Administration

1. Installation of Windows 98.
2. Installation of Windows NT, 2000, XP.
3. Installation of Windows Server 2000 and 2003.
4. Promote the Member Server to Domain Controller
5. Configuring Domain Name Service (DNS)
6. Creating the various Profiles.
7. Creation of Organization Unit (OU)
8. Creation of Users, Group Users.
9. Implementation of Policy for Users and Group Users.
10. Configuring DHCP, WINS, NAT.
11. Implementation Delegation of Administration
12. Creation of Remote Desktop
13. Terminal Services
14. Creating of Disk Volume (Simple Volume, Span Volume, Striped Volume)
15. DFS Creating.
16. Troubleshooting Command lines Command Ping, Ipconfig, Netstate, Hostname, Tracert, ARP, Nb Stat, netshare.

CORE - I
LINUX ADMINISTRATION

Course Code : 17CSAD1
Hours/Week : 10
Credit : 10

Max. Marks : 100
Internal Marks : 25
External Marks : 75

Objective :

To provide knowledge in Unix, system administration, and networking.

UNIT – I

30 hours

Unix : Introduction - Features of UNIX - UNIX System Organization - #UNIX File System# - Login and Logout Commands : Directory Oriented Commands , File Oriented Commands, Process Oriented Commands, Communication Oriented Commands, General . Purpose Commands. SHELL Programming: The Introduction - Shell script -Command Grouping - Shell Variables - Conditional parameter substitution. - Escape Mechanisms - #Shell Functions#.

UNIT – II

30 hours

System Administration : Introduction - The System Administrator - Booting the System-Shutting down the System - Adding and deleting a user - Managing devices - Mounting the File System - Compression and Decompression - #Backup Utilities# - Accessing Remote Systems.

UNIT – III

30 hours

Linux Introduction and Installation: Linux- Advantages - Red Hat Linux - New Features Installation Procedures and methods Using Desktop-GNOME-KDE-Linux Commands ,Accessing and Running Applications - Installing Red Hat Linux Applications, Running Window Application, Running Window, #DOS and Macintosh Applications# - Tools for using Internet and Web.

UNIT – IV

30 hours

Administration : Understanding System Administration : Root login-super user - GUI tools, commands and Log files - Configuring Hardware - File System and Disk Management- Monitoring Performances. Setting Up and supporting users : Creating user accounts - Setting user defaults - #Creating Desktops# - Modifying and Deleting Accounts.

UNIT – V

30 hours

Networking : Setting up a LAN-LAN-Wireless-LAN-Understanding IP Addresses, Connecting to the Internet : Dial up connection - Red Hat Linux as a router - VPN connection - Red Hat Linux as a proxy server - proxy clients. Setting up File Server -#Setting up a Web Server# - Setting up a Apache Web Server-#Configuring Apache Server-Starting and Stopping the Server#.

self-study portion

Text Book:

1. Sumitabha Das, UNIX Concepts and Applications, Tata McGraw-Hill Publishing Company Ltd., New Delhi, 2003.
UNIT I : Chapter 1, 2, 3
UNIT II : Chapter 5, 6, 7
2. Christopher Negus, Red Hat Linux 9 Bible, WILEY - Dreamtech India Pvt. Ltd, First Edition, New Delhi, 2003.
UNIT III : Chapter 1, 2, 3
UNIT IV : Chapter 6, 7, 8
3. Neil Matthew, Richard Stones, Beginning Linux Programming, Wiley Dreamtech, 3rd Edition, 2004.
UNIT V : Chapter 1, 6, 7

Books for Reference:

1. Love, Linux System Programming, Shroff, First edition, 2007.

CORE II - INTERNET SERVER ADMINISTRATION

Course Code : 17CSAD2
Hours/Sem. : 10
Credit : 10

Max. Marks : 100
Internal Marks : 25
External Marks : 75

UNIT I

Installing and Configuring Windows Server 2012 : Features and advantage of Windows server – Planning the Windows Server Installation – Server Roles in Windows Server – Deciding on Type of Installation – Installing Windows Server – ADC : Planning the Domain Structure – Installing Active Directory – Adprep – The Installation Process – Verifying AD Installation – Using with Event Viewer, AD Administrative Tools, Testing from Clients.

UNIT II

Domain Name System : Introducing DNS – The Form of IP Addresses - Understanding Servers, Clients and Resolvers – Understanding the DNS Process – Introducing DNS Database Zones, Primary Zone, Secondary Zone, AD Integrated Zone and Stub Zone – Advantages DNS – Support for IPV6 Addresses and RODC – **Dynamic Host Configuration Protocol :** Overview of DHCP – Introduction to DORA Process – Advantages and Disadvantages of DHCP – Understanding Scope Details – Installing and Authorizing DHCP – Introducing the DHCP Snappin – Authorized DHCP for AD – Creating and Managing DHCP Scopes – Scopes in IPV4, IPV6, Scope Properties, Changing Server Properties.

UNIT III

Internet Information Service : Introducing IIS 7 Modules – Feature Delegation – Installing IIS7 – Adding the Web Server Role, via Command Line and Server Core – Renovating IIS Construction – Website Provisioning – Understanding Global Settings – Creating a Simple Website – Configuring Site Settings – Hosting Multiple Web Sites - Deploying Sites, Site Uniqueness – Setting up Anonymous Account and Delegating Administration – **Exchange Server :**

UNIT IV

LINUX : Installing Linux in Server Configuration – Methods of Installation – Setting in Domain Name System Server – Understanding DNS – Understanding authoritative Zones – Understanding Bind – Quick-Starting a DNS Server – Identifying DNS Server – Creating DNS Configuration Files, Editing named.conf, Setting up the zone files – **Setting up Boot Servers: DHCP and NIS** – Using Dynamic Host Configuration Protocol – Setting Up a DHCP Server - Setting Up a DHCP Client – Understanding NIS – NIS Client, Master Server and Slave Server.

UNIT V

Setting Up a Web Server: Introducing to Web Servers - Quick Staring the Apache Web Server – Configuring the Apache Server – Starting and Stopping the Server – Monitoring Server Activities – **Setting Up an FTP Server :** Understanding FTP Servers – Using the Very Secure FTP Server.

Text Books :

1. Willaim Panek, Windows Server 2012, Complete Study Guide, Sybex, Reprint Edition 2014.

UNIT I : Chapter 1, 3,

UNIT II : Chapter 2, 10

2. Mark Minasi, Mastering Microsoft Windows Server 2008 R2, Sybex, Reprint 2010.

UNIT III : Chapter 16

3. Wale Soyinka, Linux Administration A Beginners's Guide, Mc Graw Hill Education, Seventh Edition.

UNIT IV : Chapter 2

4. Chirstopher Negus, Red Hat Fedora & Enterprise Linux 4 Bible, Wiley dreamtech India Pvt. Ltd., Edition 2005

UNIT V : Chapter 21, 20

CORE - III NETWORKING LAB - II (INTERNET SERVER ADMINISTRATION)

Course Code : 17CSAD3P

Hours/Sem. : 10

Credit : 10

Max. Marks : 100

Internal Marks : 25

External Marks : 75

1. Install Windows Server 2012 and Configure ADC
2. Install DNS and Configure in Windows Server
3. Install DHCP and Configure in Windows Server
4. Install and Configure in Windows based Web Server
5. Install and Configure Exchange Mail Sever
6. Install and Configure DNS in Linux
7. Install and Configure DHCP in Linux
8. Install and Configure NFS
9. Install and Configure Mail server
10. Demonstrate the Operations using FTP, TFTP, TELNET