MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

DEPARTMENT OF COMPUTATIONAL INTELLIGENCE

REPORT ON CISCO CCNA Certification Training Program

January 18th to 20th 2024

The Department of Computational Intelligence organized 3 Day Program on "**CISCO CCNA CERTIFICATION TRAINING"** from January 18th- 20th for the students of 3rd Year CSE-AIML, BTECH-AIML, BTECH-AIDS.

Objective of the Workshop:

The main purpose of this training was to train participants on the concepts of computer networks. Training included various topics such as Overview of Computer Networks, Exploring the Network, Configuring the NW OS, Ethernet, Network Layer, NW Protocols & Communications, NW Access, IP addressing, Subnetting, Transport Layer, Application Layer and Building a small Network.

Highlights

These are some important Concepts covered in this program: .

- **Introduction to Networking:** Understanding the importance and impact of networks in modern society.
- **Basic Switch and End Device Configuration:** Configuring and managing network devices using Cisco IOS.
- **Protocols and Models:** Overview of networking protocols, protocol suites, and reference models like OSI and TCP/IP.
- **Ethernet Switching:** Understanding Ethernet frames, MAC addresses, and switch operation.
- **Network Layer:** Characteristics of the network layer, IP packet structure, and basic routing concepts.
- **Address Resolution:** Address resolution protocols like ARP and IPv6 Neighbour Discovery.
- **Basic Router Configuration:** Configuring and managing routers, including interface and routing settings.
- **ICMP (Internet Control Message Protocol):** Overview of ICMP messages and utilities like ping and traceroute.
- **Network Security Fundamentals:** Identifying security threats, common attacks, and mitigation strategies.
- **Building a Small Network:** Designing and implementing small-scale networks, including device configuration and troubleshooting methodologies.

Schedule

SNO	Module	Faculty Details	Date
1	**Networking Today**		
	1.0 - Introduction	Dr D Sujatha	18-01-2024
	1.1 - Networks Affect our Lives		
	1.2 - Network Components		
	1.3 - Network Representations and Topologies		
	1.4 - Common Types of Networks		
	1.5 - Internet Connections		
	1.6 - Reliable Networks		
	1.7 - Network Trends		
	1.8 - Network Security		
	1.9 - The IT Professional		
	1.10 - Module Practice and Quiz		
2	**Basic Switch and End Device Configuration**		
	2.0 - Introduction	Dr D Sujatha	18-01-2024
	2.1 - Cisco IOS Access		
	2.2 - IOS Navigation		
	2.3 - The Command Structure		
	2.4 - Basic Device Configuration		
	2.5 - Save Configurations		
	2.6 - Ports and Addresses		
	2.7 - Configure IP Addressing		
	2.8 - Verify Connectivity		
	2.9 - Module Practice and Quiz		
3	**Protocols and Models**		
	3.0 - Introduction	Ms. Deepthi	18-01-2024
	3.1 - The Rules		
	3.2 - Protocols		
	3.3 - Protocol Suites		
	3.4 - Standards Organizations		
	3.5 - Reference Models		
	3.6 - Data Encapsulation		
	3.7 - Data Access		
	3.8 - Module Practice and Quiz		
4	**Physical Layer**		
	4.0 - Introduction	Dr.W. Jaishri	18-01-2024
	4.1 - Purpose of the Physical Layer		
	4.2 - Physical Layer Characteristics		
	4.3 - Copper Cabling		

	4.4 - UTP Cabling		
	4.5 - Fiber-Optic Cabling		
	4.6 - Wireless Media		
	4.7 - Module Practice and Quiz		
5	**Number Systems**		
	5.0 - Introduction	M.Vamsi Krishna	18-01-2024
	5.1 - Binary Number System		
	5.2 - Hexadecimal Number System		
	5.3 - Module Practice and Quiz		
6	**Data Link Layer**		
	6.0 - Introduction	Dr.T.siva Ratna Sai	18-01-2024
	6.1 - Purpose of the Data Link Layer		
	6.2 - Topologies		
	6.3 - Data Link Frame		
	6.4 - Module Practice and Quiz		
7	**Ethernet Switching**		
	7.0 - Introduction	Chandrasekhar Reddy.D	19-01-2024
	7.1 - Ethernet Frames		
	7.2 - Ethernet MAC Address		
	7.3 - The MAC Address Table		
	7.4 - Switch Speeds and Forwarding Methods		
	7.5 - Module Practice and Quiz		
8	**Network Layer**		
	8.0 - Introduction	Chandrasekhar Reddy.D	19-01-2024
	8.1 - Network Layer Characteristics		
	8.2 - IPv4 Packet		
	8.3 - IPv6 Packet		
	8.4 - How a Host Routes		
	8.5 - Introduction to Routing		
	8.6 - Module Practice and Quiz		
9	**Address Resolution**		
	9.0 - Introduction	Dr.G.L.N. Jayaprada	19-01-2024
	9.1 - MAC and IP		
	9.2 - ARP		
	9.3 - IPv6 Neighbour Discovery		
	9.4 - Module Practice and Quiz		
10	**Basic Router Configuration**		
	10.0 - Introduction	B. Jyothi	19-01-2024
	10.1 - Configure Initial Router Settings		
	10.2 - Configure Interfaces		
	10.3 - Configure the Default Gateway		
	10.4 - Module Practice and Quiz		
11	**IPv4 Addressing**		
	11.0 - Introduction	Ms. Deepthi	19-01-2024
	11.1 - IPv4 Address Structure		

	11.2 - IPv4 Unicast, Broadcast, and Multicast		
	11.3 - Types of IPv4 Addresses		
	11.4 - Network Segmentation		
	11.5 - Subnet an IPv4 Network		
	11.6 - Subnet a Slash 16 and a Slash 8 Prefix		
	11.7 - Subnet to Meet Requirements		
	11.8 - VLSM		
	11.9 - Structured Design		
	11.10 - Module Practice and Quiz		
12	**IPv6 Addressing**		
	12.0 - Introduction	Ms. Deepthi	19-01-2024
	12.1 - IPv4 Issues		
	12.2 - IPv6 Address Representation		
	12.3 - IPv6 Address Types		
	12.4 - GUA and LLA Static Configuration		
	12.5 - Dynamic Addressing for IPv6 GUAs		
	12.6 - Dynamic Addressing for IPv6 LLAs		
	12.7 - IPv6 Multicast Addresses		
	12.8 - Subnet an IPv6 Network		
	12.9 - Module Practice and Quiz		
13	**ICMP**		
	13.0 - Introduction	Dr.G. L.N. Jayaprada	20-01-2024
	13.1 - ICMP Messages		
	13.2 - Ping and Traceroute Tests		
	13.3 - Module Practice and Quiz		
14	**Transport Layer**		
	14.0 - Introduction	Dr.T. Siva Ratna Sai	20-01-2024
	14.1 - Transportation of Data		
	14.2 - TCP Overview		
	14.3 - UDP Overview		
	14.4 - Port Numbers		
	14.5 - TCP Communication Process		
	14.6 - Reliability and Flow Control		
	14.7 - UDP Communication		
	14.8 - Module Practice and Quiz		
15	**Application Layer**		
	15.0 - Introduction	D.. Chandrasekhar Reddy	20-01-2024
	15.1 - Application, Presentation, and Session		
	15.2 - Peer-to-Peer		
	15.3 - Web and Email Protocols		
	15.4 - IP Addressing Services		
	15.5 - File Sharing Services		
	15.6 - Module Practice and Quiz		
16	**Network Security Fundamentals**		
	16.0 - Introduction	Dr.P. Harikrishna	20-01-2024

	16.1 - Security Threats and Vulnerabilities		
	16.2 - Network Attacks		
	16.3 - Network Attack Mitigations		
	16.4 - Device Security		
	16.5 - Module Practice and Quiz		
17	**Build a Small Network**		
	17.0 - Introduction	Ms. Deepthi	20-01-2024
	17.1 - Devices in a Small Network		
	17.2 - Small Network Applications and Protocols		
	17.3 - Scale to Larger Networks		
	17.4 - Verify Connectivity		
	17.5 - Host and IOS Commands		
	17.6 - Troubleshooting Methodologies		
	17.7 - Troubleshooting Scenarios		
	17.8 - Module Practice and Quiz		

Photos Gallery