

Academy of Information Technology (AIT)

Diploma in Cloud Computing + Artificial Intelligence (AI)

Duration: 12 months

Fundamentals of PC Support Skills

- Introduction to the IT Industry
- What is the role of IT DSE- Desktop Support Engineer
- Parts of Desktop Computer and Laptop
- Functions of CPU, RAM, Hard disk and Cache Memory
- Hard disk, Input/output devices
- SMPS, Keyboard, Mouse
- Different Peripheral Devices
- Hands On - Working with BIOS
- Hands On - Create a Bootable Pen drive
- Hands On - Install Win 10, Win 11, MS Office on given PC/Laptop
- Hands On - Installation of required drivers on given PC/Laptop

Working with Operating Systems

- Different versions of Windows OS
- Hands On - Upgrading Windows 7 to Windows 10 OS
- Hands On - Dual Boot installation of Windows 7 and Windows 10
- Hands On - Installation of Windows 10 OS
- Hands On - Install essential software on client computers
- Hands On - Control Panel of Windows 10 /11
- Hands On - Security in Windows 10
- Network Connectivity in Windows OS
- Hands On - Managing Users and Groups
- Hands On - Troubleshoot OS issues

Network Essentials

- Intro to Computer Networking
- Different Network Topologies
- DoD or TCP/IP Model
- OSI Model
- Cable Media Coaxial, Twisted Pair, Fiber Optics

- Hands On - TCP/IP and IP Addressing
- Reserved IP Addresses
- Private IP Addresses
- Ports and Services
- Hands On - Setup Wired Lan Network
- Hands On - Working of DHCP
- Hands On - Working of DNS
- Hands On - Basic Network Troubleshoot Commands

Networking with Windows Server 2022

- Different Windows Server Editions (Win 2016/2019/2022/2025)
- Hands On - Install Win Server 2022 Standard (Evaluation)
- Basics of Active Directory Domain Services (ADDS)
- Hands On - Install ADDS on Server
- Hands On - Basic Configuration in Active Directory
- Hands On - Join Windows Client PC to domain
- Hands On - Create Users, Groups, and Organizational Unit (OU)
- Manage User Profile, Home Directory configuration
- Hands On - Additional Domain Controller
- Hands On - Child Domain configuration
- Hands On - Read Only Domain Controller (RODC)
- Global Catalog (GC) Service
- Hands On - Group Types and its demo
- Trust Relationships between Domains
- Hands On - Working with Folder Redirection
- Hands On - Install Software from Server to client PCs using GPO
- Basics of IP addressing and DHCP Server
- Hands On - Installation and configuration of DHCP Server
- Management of IP addresses using DHCP
- Basic concept of DNS
- Hands On - Install DNS Role
- Basic DNS configuration
- Types of DNS Zones

- Hands On - DNS Records, DNS Security
- Hands On - DNS Round Robin Method
- Hands On - Testing and troubleshooting DNS Server issues
- Hands On - Implement backup and restore with Server Backup
- Hands On - Configure Web Server and FTP Server on Win Server
- Hands On - Monitoring and troubleshooting Windows Server

Linux Administration (LA1)

- Introduction to Linux
- Linux Distributions
- Installation of CentOS Linux
- Linux Basic Commands
- Vim Text editor commands
- Accessing Help in Linux
- Create and Manage Local Users
- Create and Manage Group Accounts
- Monitor and Manage Background Processes
- Monitor Foreground Processes
- Control Access to files with File System Permissions
- Software Package Installation using rpm command
- CentOS Yum Repository Configuration
- Install, update, remove software packages using yum command
- Create Partition in Linux
- Create File System on New Partition
- Mount this New Partition on Directory
- Networking with Linux
- Troubleshooting Booting related problems
- Reset root user password
- Troubleshooting

CCNA (Routing and Switching)v1.1

Network Fundamentals:-

- Network Components
- Layer 2 and Layer 3 Switches
- Routers
- Servers
- Endpoint Devices and Wireless Access Points

Network Topology Architecture

- 2-Tier Topology
- 3-Tier Topology
- Spine-Leaf
- SOHO
- WAN
- Data On-Premises and Cloud

OSI Model

- Study of all seven layers
- Compare TCP and UDP

IPv4 Addressing

- Understand need of IPv4 Addressing
- Different Classes in IPv4
- Reserved IP Addresses
- Private IP Addresses
- Configure and Verify IPv4 Addressing on Packet Tracer
- Subnetting Basics
- CIDR Concept
- Calculate Class C, Class B and Class A Subnetting

IPv6 Addressing

- Understand need of IPv6 Addressing
- Components of IPv6 Address Format
- Addressing Methods
- Unicast Address
- Multicast Address
- Anycast Address
- Global Unicast
- Unique Local
- Link-local
- Configure and Verify IPv6 Addressing on Packet Tracer

LAN Switching

- Standard and Managed Switches
- Switch IOS
- Switch Booting Process
- Physical Ports on Layer 2 Switch and Layer 3 Switch
- Connecting Switch to PC or Laptop
- Basic Switch Commands
- Security using – Console Password, Privilege Mode
- SSH Security on Switch
- Understand Switching Concepts
- MAC Address Learning and Aging
- Frame Switching Methods
- Frame Flooding
- Creating network using Cisco Switch
- MAC Address Table

Network Access:-

- Advantage of VLAN
- Create VLAN

- Access Ports
- Trunk Ports
- VOIP Access Ports
- Default VLAN
- Types of VLAN Ports
- VLAN Tagging – 802.1Q and ISL
- InterVLAN using Router
- InterVLAN using Layer-3 Switch
- VLANs Multiple Switches

Spanning Tree Protocol (STP)

- Understand need for Rapid PVST+ Spanning Tree Protocol
- Configure RSTP On Switch
- STP Basic Operations
- BID, BPDU, Root Bridge
- Root Port
- Port States – Forwarding/ Blocking
- PortFast Benefits

IP Connectivity:-

IP Routing

- What is a Routing
- How Routing Table is Created
- Static Routing vs Dynamic Routing
- Concept of Administrative Distance
- Routing Protocol Metrics

Static Routing

- Default Route
- Network Route
- Floating Static Routes

- Static Routing in IPv4 and IPv6 Networks

Dynamic Routing- Routing Information Protocol

- Basics of Routing Info Protocol
- Metric Value
- Configuration Commands
- Configure Dynamic Routing on given example

Open Shortest Path First (OSPFv2)

- Area ID Concept
- Router ID
- Backbone Router, Internal Router, Area Border Router
- Area Summary Border Router (ASBR)
- Configure OSPFv2 on IPv4 network

CDP and LLDP

- Working of CDP and LLDP
- Configuring CDP and LLDP for inventory

IP Services: -

Network Time Protocol (NTP)

- What is Network Time Protocol
- Configure NTP in Client and Server Mode

Dynamic Host Configuration Protocol (DHCP)

- Working of DHCP
- Configure DHCP on the Router to assign IP addresses automatically

Domain Name System (DNS)

- Fundamentals of DNS in network
- Working of DNS
- Configure DNS on Router

- Verify DNS configuration

Simple Network Management Protocol (SNMP)

- Functions of SNMP in the network
- SNMP Versions
- SNMP Messages
- SNMP Configuration in the network

Syslog

- Functions of Syslog
- Levels of Log Messages
- Configure Syslog to collect Log messages centrally

Security Fundamentals:-

Key Security Concepts

- Define key security concepts like Threats, vulnerabilities, exploits and mitigation.

Access Control List (ACL)

- Security Fundamentals
- Types of ACL
- Standard, Extended and Named ACL
- ACL Configuration

Network Address Translation (NAT)

- NAT Terminology and NAT Types
- Static NAT
- Dynamic NAT
- PAT-Overloading

Advanced Topics:-

- DHCP Snooping
- Remote Access and Site to Site VPN
- Automation and Programmability
- Troubleshoot Services related problems in Linux

Cloud Computing - AWS

- Introduction to Cloud Computing
- Benefits of using Cloud in Businesses
- Cloud Types- Private, Public, Hybrid, Community Cloud
- Cloud Models – IaaS, PaaS, SaaS
- Amazon AWS Regions, Availability Zones, AWS Datacenters
- Amazon AWS Free Tier Account details
- Hands On - Sign up for Free Tier Account
- Hands On - Tour of AWS Console
- How can users access AWS
- Hands On - IAM Users & Groups
- What is AWS CLI
- Hands On – Setup AWS CLI on Windows
- What is IAM Roles for AWS Services
- Hands On – IAM Roles
- Hands On - Create an IAM user account
- Hands On - Cost explorer – Monthly Cost by AWS Service
- AWS Budget Setup
- How Budget helps to new users from paying more charges
- Hands On – Setup Budget of 10 dollars per month
- EC2 Instance Fundamentals
- What is Elastic Cloud Computing (EC2)
- Different EC2 instance types in AWS
- EC2 Sizing & configuration options
- Hands On – Create and Launch Linux EC2 Instance with Data script
- EC2 Instance types – General Purpose

- Compute Optimized
- Memory Optimized
- Introduction to Security Groups Firewall
- Hands On – Security Groups
- Hands On – SSH Linux instance using Windows PowerShell
- Hands On – SSH Linux using putty
- Hands On – EC2 Instance Roles demo
- Classic Ports – 22,21,80,443,3389
- EC2 Windows Instance-
- Windows Server instances on AWS
- Hands On - Launch EC2 instance for Windows Server
- What is a Remote Desktop Protocol (RDP)
- Hands On - Connecting Windows Server using RDP
- S3 Bucket Storage-
- What is Simple Storage Service (S3)
- S3 Buckets and Objects
- Hands On – Create a S3 Bucket to store data
- What is S3 Versioning
- Hands On - S3 Versioning
- Hands On - S3 Encryption
- S3 Bucket Policies-
- Hands On – S3 Security Bucket Policy
- S3 Console for Static Website
- Hands On – S3 Website
- Presigned URLs Hands on
- S3 Storage Classes + Glacier
- Hands On – S3 Storage Classes
- EBS Volume -
- What is Elastic Block Storage (EBS) Volume
- Hands On – EBS Volume
- Networking –Virtual Private Cloud (VPC)-
- Private vs Public IP

- Default VPC basics
- Hands On – VPC
- Fundamentals of Subnet
- Hands On - Subnet
- What is Internet Gateway(IG) and Route Table
- Hands On-IG and Route Table
- What is VPC Peering
- Hands On – VPC Peering
- Basics of Route 53 DNS Service
- AWS Cloud Automation

ARTIFICIAL INTELLIGENCE

... AI Emerging Technologies

ARTIFICIAL INTELLIGENCE (AI)

- Introduction to Artificial Intelligence (AI)
- What is the Future of AI
- Types of AI-Narrow AI, General AI
- Intro to Subfields of AI -
- Machine Learning, Deep Learning, Natural Language Processing (NLP), Computer Vision and Robotics
- What are the Applications of AI –
- Healthcare, Finance, Transportation, Customer Service, Entertainment

CLOUD COMPUTING TOOLS WITH AI

- AI-Based Backup/Data Recovery Solutions Tool –Rubrik
- AI Tool – Splunk
- AI-Enabled Remote Desktop Support Tool - Log Mein Rescue
- AI- Inventory Management Systems Tool – Lansweeper
- AI Tool – Grafana

INTRO TO PROMPT ENGINEERING

- Creating ChatGPT, DeepSeek and Copilot Accounts
- Fundamentals of Prompt Engineering
- Basics of GPT Models
- Prompt Format
- Working with Prompts
- Applications of Prompt Engineering

SERVER REPAIR TOOLS WITH AI

- CPU-Z (Power of AI for detailed CPU, Motherboard and RAM diagnostics)
- Working with PRTG Network Monitor
- Computer Hardware Sentinel AI
- Recuva AI (Data Recovery with AI Features)
- Various AI Enabled Computer Repair Tools

AI TOOLS

- Pictory AI, Synthesia, Fliki
- Invideo, DALL-E3
- Deep Dream Generator
- Running ML

FINAL EXAM