

# NETWORK ENGINEERING TRACK

## Linux Technologies

### **QUARTER 1 – DESKTOP APPLICATIONS - ESSENTIALS**

#### **Module 1 - Office Applications**

This subject enables users to acquire the necessary knowledge and skills to use Office Productivity Tools (MS Office) effectively.

This subject covers usage of applications for creating professional documents, spreadsheets, use of email, relational database, and preparation of screen-based presentations. Coverage includes MS Word, MS Excel, MS PowerPoint, MS Outlook and MS Access.

Guideline for teaching and learning time: 178

International Certification Mapping: ICDL/ECDL – International Computer Driving License

#### **Module 2 - Fundamentals of Programming**

This course will introduce the student to the exciting world of programming. The student will learn to depict the logic of the programs using Flowcharts and Algorithms.

Guideline for teaching and learning time: 60

International Certification Mapping: None

### **QUARTER 2 – NETWORKING AND OPERATING SYSTEMS ESSENTIALS**

#### **Module 1 - Understanding IT Applications**

A beginner in the field of IT is invariably faced with extensive IT jargon. This subject addresses the need to understand the world of business and the world of IT in an organized way. It introduces the student to the exciting world of IT, the associated services, the entities involved in IT (like HW, SW, Networking etc.) and how the business organizations are structured today.

Guideline for teaching and learning time: 40

International Certification Mapping: None

#### **Module 2 - Operating System Fundamentals**

This course introduces participants to OS Fundamentals, providing basic knowledge of Command Line Prompt, Windows 9x and Windows 2000, Windows XP for installing, configuring, upgrading, troubleshooting, and repairing microcomputer systems. This is a part of the A+ certification. The other part (48 hrs) shall be an elective and will cover A+ (Hardware Fundamentals).

Guideline for teaching and learning time: 118

International Certification Mapping: CompTIA – A+ OS Technologies

### **Module 3 - Networking Fundamentals**

The course deals with networking fundamentals, configuring, installing and troubleshooting network, and it also covers the knowledge and skills necessary to configure and install protocols as well as a wide range of vendor and product neutral networking technologies.

Guideline for teaching and learning time: 80

International Certification Mapping: CIW : Networking Fundamentals

## **QUARTER 3 – RELATIONAL DATABASE DESIGN**

### **Module 1 - Introduction to Relational Database Design**

This module deals with the theory of Relational databases, relational database nomenclature and relational algebra. The course includes sections on E-R Diagrams and optimizing databases through Normalization

Guideline for teaching and learning time: 58

International Certification Mapping: CIW: Database Design Methodology

### **Module 2 - Implementing a Databases using SQL Server 2000**

The student will learn to understand and implement relational databases using SQL Server 2000. Students will also learn about creating and managing database objects in a relational database environment. This also provides an insight to creating and maintaining database integrity by implementing business rules.

Guideline for teaching and learning time: 180

International Certification Mapping: Microsoft – Implementing Databases Using SQL Server 2000 (70-229)

## **QUARTER 4– DATABASE ADMINISTRATOR**

### **Module 1 - Installing, Managing, and Troubleshooting Windows XP**

This course provides the skills to install, manage, and troubleshoot Microsoft Windows XP on stand-alone computers and on client computers that are the part of workgroup or domains.

Guideline for teaching and learning time: 120

International Certification Mapping: Microsoft – Installing, Configuring, and Administering Microsoft Windows XP Professional – 70-270

### **Module 2 - Administering MS SQL Server 2000 Databases**

This module is designed to impart knowledge and skills required to install, configure, administer and troubleshoot Microsoft SQL Server 2000. Planning, installing, upgrading, troubleshooting, and verifying SQL Server 2000 installation, Monitoring and optimizing SQL Server 2000 system activity, Configuring and using SQL Mail and SQL AgentMail, Configuring and Managing Linked Servers, Working with replication services and creating and managing security roles are some of the topics covered.

Guideline for teaching and learning time: 118

International Certification: Microsoft – Administering a database on MS SQL Server 2K – 70-228

## **QUARTER 5– LINUX OS ESSENTIALS**

### **Module 1 - TCP/IP Fundamentals and Concepts**

This course provides a broad awareness of Transmission Control Protocol / Internet Protocol. It also provides the student information on configuring TCP/IP, concepts of sub netting etc... so that at the end of the course, the student is conversant with the applicability of TCP/IP in a professional Networking environment.

Guideline for teaching and learning time: 60

International Certification: CIW: Internetworking Professional

### **Module 2 - Essentials of Linux Operating System (RH033)**

This course provides the student with the adequate skills for working at the Unix/Linux command line. It also provides adequate knowledge to the learner on customizing his or her own Linux environment for Command line processes and desktop productivity roles.

Guideline for teaching and learning time: 178

International Certification: None, but the objectives should map to the course objectives of the Red Hat Course – RH033 – Red Hat Linux Essentials

## **QUARTER 6– LINUX OS ADMINISTRATION – PART 1**

### **Module 1 - Linux - System Administration**

This course aims at providing the student with the skills of installation, configuration, and attaching a newly installed Red Hat Linux system into an existing network. In addition to the above, the course also provides knowledge on device configuration, File system management, services management, user administration and kernel configuration.

Guideline for teaching and learning time: 120

International Certification: Red Hat Certified Technician (RHCT 202)

### **Module 2 - Linux – Networking and Security Administration**

This course aims at providing the student with the skills of Network Management in Linux and configuring common network services with focus on email services, http services, network file sharing and security.

Guideline for teaching and learning time: 118

International Certification: Red Hat Certified Engineer (RHCE 302)

## **QUARTER 7– LINUX OS ADMINISTRATION – PART 2**

### **Module 1 - Linux - Enterprise Directory Services and Authentication**

This course aims at providing the student the necessary skills to configure various applications for optimum performance on Linux operating systems. It further focuses on using LDAP for providing an ad-hoc information repository on an enterprise Linux system.

Guideline for teaching and learning time: 118

International Certification: NONE

### **Module 2 - Linux - Advanced Administration and Troubleshooting**

This course aims at developing skills on Advanced Administration tasks on the Linux Enterprise platform. It also helps administrators with troubleshooting problems and situations when working with a Linux deployment. It further focuses on general Linux concepts, utilities and tools aiming at providing administration and management facilities for Linux and Open Source software.

Guideline for teaching and learning time: 120

International Certification: NONE

## **QUARTER 8– NETWORK MANAGEMENT – PART 1**

### **Module 1 - Windows System Administration**

This course provides the students with the skills of managing accounts and resources on MS Windows Server 2003. Additionally the course also provides the skills to maintain server resources, monitor performance and safeguarding data on MS Windows Server 2003. Being consistent with environment, where most deployments involve more than one platform and cross platform functionality for applications and processes, the course helps build skills on leading Enterprise Server platforms through Windows knowledge and skills for Linux system Administrators.

Guideline for teaching and learning time: 140

International Certification: NONE

### **Module 2 - IT Infrastructure Planning and Management**

This course focuses on building skills on Planning, Deploying and Managing IT Infrastructure. The course aims at providing real-life skills on working in IT teams for organizations and planning deployment of Infrastructure to meet business requirements. Standards, Practices, Methodologies, Frameworks for planning and Deploying IT Infrastructure and Standard Infrastructure Management practices, with relevant tools and technologies are covered, making the platforms knowledge and skills complete.

Guideline for teaching and learning time: 98

International Certification: NONE

## **QUARTER 9– NETWORK MANAGEMENT – PART 2**

### **Module 1 - Advanced Systems and Network Management**

This course focuses on building skills on Tools and Technologies for advance management of systems and networks. The course builds upon knowledge of platforms and introduces learners to advance technologies for better resources management and improved efficiency. It also introduces the learners to innovative concepts, technologies and practices being used worldwide for better management of IT resources.

Guideline for teaching and learning time: 118

International Certification: NONE

### **Module 2 - Understanding I T Project Management**

This course covers the business, interpersonal and technical skills required to successfully manage IT projects, as defined by experts in the industry.

Guideline for teaching and learning time: 120

International Certification: CompTIA – IT Project+

## **QUARTER 10– I S SECURITY & MANAGEMENT – PART 1**

### **Module 1 - Information Systems Security Essentials**

This course is an introduction to the security essentials. Student will identify and examine the latest trends in information security and how they are implemented.

Guideline for teaching and learning time: 118

International Certification: CompTIA – Security+

### **Module 2 - Fundamentals of Network Security, Firewalls and VPN's**

This course offers an introduction to Virtual Private Networks (VPNs) and Firewalls for securing a network. Students will identify and examine various network security related issues. They will identify the benefits and architecture of a VPN, besides identifying different types of VPNs for securing data in an organizational setup. They will study how to implement a VPN. They will also identify the utility of firewalls in tackling security problems besides identifying the limitations of a firewall. In addition, they will configure and administer a firewall besides understanding its functionality.

Guideline for teaching and learning time: 120

International Certification: CIW – Network Security and Firewalls

## **QUARTER 11– I S SECURITY & MANAGEMENT – PART 2**

### **Module 1 - IS Risk Management and Intrusion Detection**

This course deals with the concepts of risk management and intrusion detection. Students will study how to assess and manage risks to information security. Student will also identify the activities involved in the process of information security risk management for an organization. The student will appreciate the role of intrusion detection in information security and identify different tools used to detect intrusion.

Guideline for teaching and learning time: 118

International Certification: None

### **Module 2 - Hacker Techniques, Tools and Incident Handling**

This course is an introduction to the hacking tools and incident handling. Student will identify various hacking tools and vulnerabilities of operating systems, software, and networks, which are used by hackers to access unauthorized information. This course will also cover the incident handling methods that are used by the organizations and individuals when information security is compromised.

Guideline for teaching and learning time: 120

International Certification: CIW - Security Auditing, Attacks and Threat Analysis

## **QUARTER 12– I S SECURITY & MANAGEMENT – PART 3**

### **Module 1 - Security Policies and Implementation Issues**

The course will enable students to define a security policy to protect and maintain a network. It will include various types of policies such as Password policy, e-mail policy, and Internet policy. The issues will include organizational behavior and crisis management that may arise while implementing these policies.

Guideline for teaching and learning time: 118

International Certification: None

### **Module 2 - System Forensics Investigation and Response**

This course introduces the concept of system forensics investigation and response. The course will cover the procedure for investigating computer and cyber crime. It will include steps to be performed in case the security of one's computer system is compromised. The course will include the concepts of collecting, analyzing, recovering and preserving forensic evidence.

Guideline for teaching and learning time: 120

International Certification: None