



## Course Syllabus

<b>Course Code:</b>	<b>MTNETMT</b>
<b>Course Title:</b>	<b>NETWORK MANAGEMENT AND ADMINISTRATION</b>
<b>Course Description:</b>	Basic management and administration of network services. Exercises will be on the administration of key enterprise network services and security on Red Hat Enterprise Linux systems.
<b>Course Credit:</b>	<b>Three ( 3 ) units</b>
<b>Course Prerequisite:</b>	<b>None</b>
<b>Course Objectives:</b>	<p><b><i>General</i></b> <b>At the end of the course, the student should be able to:</b></p> <ul style="list-style-type: none"><li>• Gain knowledge on enterprise systems administration and advanced network solutions.</li></ul> <p><b><i>Specific</i></b></p> <p><b><i>Cognitive</i></b> <b>At the end of the course, the student should be able to:</b></p> <ul style="list-style-type: none"><li>• Explain the important role of a system administration in an enterprise environment</li><li>• Outline useful Unix/Linux commands and utilities to maintain a network system</li><li>• Understand the importance of having an efficient and manageable Linux network services.</li></ul> <p><b><i>Affective</i></b></p>

**At the end of the course, the student should have attitudes that make them:**

- Resourceful in searching for more network innovations/solution that can be useful in the future
- Prepared for new networking technologies that can benefit the company they are working in

***Psychomotor***

**At the end of the course the students should be able to:**

- Effectively configure an enterprise-grade network services
- Enhance and maintain an enterprise-grade network system.
- Add additional programs to secured a network system.

**COURSE OUTLINE**

**WEEK 1 : Orientation & Review to Basic Commands and Introduction Networking**

<b>Module 1</b>	Course Outline and Housekeeping
<b>Module 2</b>	Basic Commands
<b>Module 3</b>	Basic Linux Networking
<b>Module 4</b>	Setting permission to a files and directories
<b>Module 5</b>	Managing Network Settings
<b>Module 6</b>	Activity 1

**WEEK 2 : Introduction to Networking Services**

<b>Module 7</b>	Red Hat Enterprise Linux Network Services
<b>Module 8</b>	Managing Red Hat Services
<b>Module 9</b>	Managing xinetd Controlled Daemons
<b>Module 10</b>	SELinux: Secure Linux
<b>Module 11-12</b>	Activity 2

**WEEK 3 : Introduction to Networking Services & The Apache Web Server**

<b>Module 13</b>	Lab Test: Introduction to Networking Services
<b>Module 14</b>	Test: Introduction to Networking Services
<b>Module 15</b>	Web Server Basics
<b>Module 16</b>	Apache configuration
<b>Module 17</b>	Apache Configuration: Containers
<b>Module 18</b>	Virtual Hosts

## **WEEK 4 : The Apache Web Server**

- Module 19** The Squid Proxy Server
- Module 20** Lab Test: The Apache Web Server
- Module 21** Test: The Apache Web Server
- Module 22-24** Activity 4

## **WEEK 5 : Berkley Domain Name Service (BIND)**

- Module 25** Introduction to DNS
- Module 26** Installing and Configuration BIND
- Module 27** BIND Databases and Resource Records
- Module 28** More BIND Configuration
- Module 29-30** Activity 7

## **WEEK 6 BIND, NFS and DHCP**

- Module 31** Berkley Domain Name Service (BIND)
- Module 32** Cont... Berkley Domain Name Service (BIND)
- Module 33** Network File Service (NFS) Servers
- Module 34-36** Activity 8

## **WEEK 7 The Network File Service (NFS) and DHCP**

- Module 37** Cont... NFS Servers
- Module 38** The Dynamic Host Configuration Protocol
- Module 39** Cont... The Dynamic Host Configuration Protocol
- Module 40-42** Activity 9

## **WEEK 8 The Network File Service (NFS) and DHCP & Samba**

- Module 43** Introducing the Samba Service
- Module 44** Samba Global Configuration
- Module 45** The Network File Service (NFS) and DHCP
- Module 46** The Network File Service (NFS) and DHCP
- Module 47** Introducing the Samba Service
- Module 48** Samba Global Configuration

## **WEEK 9 Samba**

- Module 49** Samba Global Configuration
- Module 50** Samba Shares
- Module 51** Samba Shares
- Module 52-54** Activity 10

## **WEEK 10     Cont... Samba**

**Module 55-60** Activity 11

## **WEEK 11     Postfix**

**Module 61**     Overview of Email Delivery  
**Module 62**     Cont... Overview of Email Delivery  
**Module 63**     Managing Postfix  
**Module 64**     Cont... Managing Postfix  
**Module 65**     Configuration Postfix  
**Module 66**     Cont... Postfix

## **WEEK 12     Cont... Postfix**

**Module 67-72** Activity 12

## **WEEK 13     Postfix & Laboratory Examination**

**Module 73**     Pretest: Postfix  
**Module 74**     Lab Test: Postfix  
**Module 75**     Test: Postfix  
**Module 76-78** Laboratory Examination

### **Workbook:**

Red Hat Academy.2007.RHA230: **Red Hat Enterprise Linux Network Applications**.  
United States: Red Hat, Inc.

### **References:**

Olifer, Natalia & Olifer Vector. 2006. **Computer Network**. USA. John Wley & Sons, Ltd.  
Krumer, Anurag Etial. 2006. **Communication Networking Media** Elserer Inc.  
Englender, Iru. 2006 Computer Hardware System - Networking. USA John Wiley & Sons Ltd.  
Kartalopoulos, Stamatros. 2009. **Security of information and Communication Network** USA. John Wiley & Sons Ltd.  
Buttyan, Lorente & Arborx, Jean Prerre. 2008. **Security and Cooperation in Wireless Networks** USA. Cambridge University Press  
Ravi, Kumar Jan B.2005. **Open Source Software**. Hyderabad, India: The ICFAI University Press.  
Eckert, Jason.2007. **Suse Linux Enterprise Server Administration**. Course Technology

Forouzan, Behrouz.2006.**TCP/IP Protocol Suite 3<sup>rd</sup> Edition**. Avenue of the Americas, New York:McGraw-Hill.

Eastton, Chuck.2006.**Security: Computer Security Fundamentals**. Upper Saddle River, New Jersey:Pearson Education,Inc.

Schwarz, Clarke.2005.**Mike Meyers' Certification Passport Network+**. Emeryville, California, USA:McGraw-Hill/Osborne.

Smith, Roderick.2007. **Linux Administration Street Smarts**. Indianapolis, Indiana:Wiley Publishing, Inc.

<<https://www.isc.org/software/bind/documentation/arm95>>

Red Hat. "Red Hat Manuals." Documentation(2009). 1 December, 2008.

<<http://www.redhat.com/docs/>>.

## Instructional Strategy

Lectures and Class Discussion, Laboratory Exercises, Case Studies, Quizzes and Exams

## Grading System:

Lab Exercises	-	25%
Seatwork / Quizzes	-	10%
Case Study	-	15%
Midterm Exam	-	20%
Final Exam	-	20%
Class Participation	-	10%
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		100%

**Passing Rate: 70 %**

## Timing

1. Each module is a 30 minute classroom instruction
2. Each class = 6 modules (180 minutes teaching; 20 minutes for consultation)