

# VEER NARMAD SOUTH GUJARAT UNIVERSITY

## Syllabus

### MCA (5<sup>th</sup> Semester)

#### Paper : 503 : Networking Essential & Its Security

## 1. Networking Essentials

- 1.1 Repeaters and Bridges
  - 1.1.1 LAN Expansion
  - 1.1.2 Repeaters
  - 1.1.3 Bridges
  - 1.1.4 How Bridges work
  - 1.1.5 Creating the routing tables
  - 1.1.6 Segmenting network traffic
  - 1.1.7 Remote bridges
  - 1.1.8 Differentiating between bridges and repeaters
- 1.2 Routers & Gateways
  - 1.2.1 Routers
  - 1.2.2 How Routers work
  - 1.2.3 Routing Benefits
  - 1.2.4 Routing Protocols
  - 1.2.5 Routing V/S Bridging
  - 1.2.6 Brouters
  - 1.2.7 Gateways
  - 1.2.8 How gateways work
- 1.3 Network Administration
  - 1.3.1 Bottlenecks
  - 1.3.2 Simple Network Management Protocols
  - 1.3.3 Data Protection
  - 1.3.4 Backup Methods
  - 1.3.5 Testing and Storage
  - 1.3.6 Implementing a backup system
  - 1.3.7 Uninterruptible Power Supply
  - 1.3.8 Implementing Fault Tolerance Systems
    - 1.3.8.1 RAID
    - 1.3.8.2 Sector Sparing
- 1.4 Advance WAN Transmission
  - 1.4.1 Overview
  - 1.4.2 Multiplexing, Packet and Circuit Switching networks
  - 1.4.3 X.25
  - 1.4.4 Asynchronous Transfer Mode (ATM)
  - 1.4.5 ISDN
  - 1.4.6 SONET
  - 1.4.7 SMDS

## 2. Introduction to network security

- 3. Cryptography Techniques**
  - 3.1 Classical cryptography
  - 3.2 Conventional cryptography
    - 3.2.1 DES
  - 3.3 Public-key cryptography
    - 3.3.1 RSA
  - 3.4 Digital signatures
    - 3.4.1 DSA
  
- 4. Security services**
  - 4.1 Message integrity
  - 4.2 Confidentiality and authentication
  - 4.3 Certification and key management
    - 4.3.1 PKI
  
- 5. Network security applications**
  - 5.1 IP security
    - 5.1.1 IPsec
  - 5.2 Web security
    - 5.2.1 SSL, TLS, SET
  - 5.3 Electronic mail security
    - 5.3.1 PGP, S/MIME)
  - 5.4 SNMP security
  
- 6. Access control in computer networks**
  - 6.1 Authentication protocols and services
    - 6.1.1. Kerberos and X.509
  - 6.2 Firewalls
  - 6.3 Virtual Private Networks (VPNs).
  
- 7. System security**
  - 7.1 Intrusion detection
  - 7.2 Viruses
  
- 8. Mobile system & E-commerce securities**
  - 8.1 3G security
  - 8.2 e-payment systems
  - 8.3 fair data exchange

## **REFERENCES :-**

1. W. Stallings, Cryptography and Network Security, 2/e, Pearson Education, 1999.
2. W. Stallings, Network Security Essentials: Applications and Standards, 1/e, Pearson Education, 2000.
3. E. Rescorla, SSL and TLS: designing and building secure systems, Addison-Wesley, 2001.
4. K M Phaltankar, Implementing Secure Intranets and Extranets, Artech House Publishers, 2000.
5. W. Ford, and M. Baum, Secure Electronic Commerce: Building the Infrastructure for Digital Signature and Encryption, Prentice Hall, 2001.
6. C. P. Pfleeger, Security in Computing, 2/e, Prentice Hall, 1997.
7. E. D. Zwicky, et al, Building Internet Firewalls, 2/e, O'Reilly, 2000. This is a best selling book covering firewall design and implementation.
8. M. Y. Rhee, CDMA Cellular Mobile Communications & Network Security, Prentice Hall, 1998.

# **VEER NARMAD SOUTH GUJARAT UNIVERSITY**

## **Syllabus**

### **MCA (5<sup>TH</sup> Semester)**

#### **PAPER : 504 : Advanced Database Administration**

- 1. Oracle Creating an Database**
  - 1.1 Initialisation parameters and database creation
  - 1.2 Troubleshooting database creation
  - 1.3 Managing initialisation parameters using a server parameter file
  - 1.4 Defining application services for Oracle Database 10g
  
- 2. Starting up and shutting down the database**
  - 2.1 Options
  - 2.2 Altering database availability
  - 2.3 Quiescing a database
  
- 3. Managing Oracle Databases processes**
  - 3.1 Dedicated and shared server processes
  - 3.2 Configuring Oracle database for shared server
  - 3.3 Monitoring the operation of the database
  
- 4. Oracle Database Structure & Storage**
  - 4.1 Managing Control files
  - 4.2 Managing Redo log
  - 4.3 Managing Archived Redo logs
  - 4.4 Managing Tablespaces
  - 4.5 Managing Datafiles & Tempfiles
  - 4.6 Managing Undo Tablespace
  
- 5. Automated File & Storage Management**
  - 5.1 Using Oracle Managed Files
  - 5.2 Using Automatic Storage Management
  
- 6. Schema Objects**
  - 6.1 Managing space for schema objects
  - 6.2 Managing Tables
  - 6.3 Managing Partitioned Tables and Indexes
  - 6.4 Managing Clusters, Hash Clusters, Views, Synonyms & sequences
  - 6.5 Detecting and repairing data block corruption
  
- 7. Managing Users and securing the Database**
  
- 8. Overview of Scheduler Concepts**

- 9. Automatic Database Diagnostic Monitor**
- 10. Automatic Tuning Optimiser**
- 11. Automatic Shared memory tuning**
- 12. Automatic Backup & Recovery**

**REFERENCES :-**

1. Rick Greenwald, Robert Stackowiak, Jonathan Stern : Oracle Essentials : Oracle Database 10g – O'Reilly
2. Gavin Powell : Oracle High Performance Tuning for 9i and 10g – Digital Press
3. Loney, Kevin, Bryla, Bob : Oracle Database 10g, DBA Handbook – Oracle Press
4. Loney, Kevin : Oracle Database 10g The Complete Reference – Oracle Press

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**Syllabus**

**MCA(5<sup>TH</sup> Semester)**

**PAPER : 505 : Open Source Web Based Programming(PHP/MySql)**

**1. Introduction to LINUX**

**2. LINUX Architecture**

**3. Installation of PHP,MySql and Apache Web Server**

**4. Introduction to Advanced Web Programming with PHP**

**5. Writing PHP Programs**

**6. Loops and Arrays**

**7. PHP functions**

- 7.1. String Functions
- 7.2. Array Functions
- 7.3. Mathematical Functions
- 7.4. Graphics Library (GD Support)
- 7.5. File System Functions
- 7.6. Date and Time Functions
- 7.7. Misc. Function

**8. Error Handling**

**9. Object Oriented Features of PHP**

**10. Classes and Objects**

- 10.1. Use Of constructors
- 10.2. Serialization

**11. File and Directory Handling**

**12. MySQL Database Server**

- 12.1. Configuring the MySQL Server
- 12.2. Starting MySQL Server
- 12.3. MySQL Tables
- 12.4. Displaying MySQL Database
- 12.5. Adding and removing user access
- 12.6. Checking and fixing database

**13. Advance PHP programming**

- 13.1. XML
- 13.2. Mail
- 13.3. Simple invoice with credit card payment via PayPal,
- 13.4. PHP-generated Adobe Acrobat documents

**14. File Server**

- 14.1. NFS
- 14.2. Samba
- 14.3. Netware

## 15. Mail Server

- 15.1. Introduction to SMTP and sendmail
- 15.2. Installing and running sendmail
- 15.3. Configuring sendmail, Introducing Postfix
- 15.4. Getting mail from the server (POP)
- 15.5. Administering a mailing list

## 16. FTP Server

- 16.1. Understanding FTP server, Secure FTP server

## 17. Web Server

- 17.1. Introduction to web server
- 17.2. Configuring Apache web server
- 17.3. Starting and stopping web server, Monitoring server activities

## REFERENCES

1. **Beginning PHP 4 Databases** – Christopher Scollo, Harish Rawat, Deepak Thomas, Chris Lea, Sanjay Abraham, Andrew Hill & Jim Hubbard - Wrox Press Inc, October 2000
2. **PHP MySQL Website Programming** - Chris Lea, Mike Buzzard, Jessey White-Cinis & Dilip Thomas - Wrox Press Inc, Mar 2003
3. **PHP Black Book** - Peter Moulding - The Coriolis Group, October 2001
4. **MySQL/PHP Database Applications** - Jay Greenspan & Brad Bulger - John Wiley & Sons, January 2001
5. **PHP MySQL Website Programming: Problem - Design – Solution**  
- Chris Lea, Mike Buzzard, Jessey White-Cinis & Dilip Thomas - Apress, 2003
6. **Essential PHP for Web Professionals** - Christopher Cosentino - Prentice Hall, October 2000
7. **PHP MySQL Website Programming** - Chris Lea, Mike Buzzard, Jessey White-Cinis & Dilip Thomas - Wrox Press Inc, Mar 2003
8. **SAMS Teach Yourself PHP4 in 24 Hours (2nd edition)** - Matt Zandstra - Sams, Dec 2001