

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED [M.S.]

Choice Based Credit System (CBCS Pattern)

Faculty of Computer Studies

Syllabus of B.Sc. Network Technology Third Year Effective from Academic Year (2018-2019)

Under Graduate (UG) Program

| Somoston | Subject | Course Name | Cr | edit | Total | |
|---------------|-----------|--------------------------------------|----------|----------|---------|--|
| Semester | Code | Course Name | Internal | External | Credits | |
| | S5.CC.1 | Distributed System | 1 | 3 | 4 | |
| | S5.CC.2 | Linux Administration Part – II | 1 | 3 | 4 | |
| | S5.CC.3 | Windows Server – 2012 ADC Part-I | 1 | 3 | 4 | |
| | S5.CC.4 | Network Administration Part – II | 1 | 3 | 4 | |
| | S5.CC.5 | Elective: | 1 | 3 | 4 | |
| | | 1. CCENT | | | | |
| | | 2. Cloud Computing | | | | |
| Semester – V | | 3. VM ware | | - | | |
| | S5.Lab 1 | Linux Administration Part – II | | 2 | 2 | |
| | S5.Lab 2 | ADC 2012 Part- I | | 2 | 2 | |
| | S5.Lab 3 | Network Administration Part – II | | 2 | 2 | |
| | S5.SEC.1 | Skills Enhancement Course (SEC) | | 2 | 2 | |
| | | 1. Java script | | | | |
| | | 2. MySQL | | | | |
| | | 5. Accounting with Tally | | | | |
| | | Environmental Studies | | | 20 | |
| | | TOTAL | | 2 | 28 | |
| | \$6.CC.1 | Network Security | 1 | 3 | 4 | |
| | S6.CC.2 | Exchange Server 2010 | 1 | 3 | 4 | |
| | S6.CC.3 | Windows Server 2012 ADC Part – II | 1 | 3 | 4 | |
| | S6.CC.4 | Windows 7 | 1 | 3 | 4 | |
| | S6.CC.5 | Elective: | 1 | 3 | 4 | |
| | | 1. CCNA Security | | | | |
| | | 2. Windows Share Point 2010 | | | | |
| Semester - VI | CCL-h-1 | 5. Adiloc & Selisof Network | | 2 | 2 | |
| | So.Lab I | Exchange Server – 2010 | | 2 | 2 | |
| | S6.Lab 2 | ADC 2012 Part – 11 | | 2 | 2 | |
| Semester – VI | S6.Lab 3 | Windows 7 | | 2 | 2 | |
| | \$6.SEC.1 | Skill Enhancement Course (SEC) | | 2 | 2 | |
| | | 1. SQL SELVEL 2. Macromedia Flash | | | | |
| | | 3. Android Programming | | | | |
| | | TOTAL | | | 28 | |

| Name of Course | B.Sc. NT TY |
|-----------------|---------------------|
| Semester | V Semester |
| Name of Subject | Distributed Systems |
| Subject Code | \$5.CC.1 |

Pre-requisites:

- Computer Networks
- Operating Systems
- C Programming

Course / Learning Objectives:

- Introduce distributed computing environment.
- Emphasize on design techniques and constraints of distributed computing environment.
- Emphasize on analysis of distributed computing environment.

Course Outcomes/ Utility of Course:

- Distinguish between distributed computing and parallel computing.
- Understand concepts of architectural Styles, Communication, and Synchronization.
- Demonstrate different naming & synchronization technologies
- Explore various distributed concepts.

Salient Features:

- Helps to understand Concepts of distributed computing environment
- Motivate to Use distributed architectures instead of central and / or parallel
- Help to understand working of various existing distributed systems.

Unit – I

| 1. | Intr | oduction | Lecturer s | Ref. No. |
|----|------|----------------------------------|---------------|----------|
| | a) | Definition of distributed system | 01 | 1 |
| | b) | Goals | 02 | 1 |
| | c) | Types of Distributed systems | 03 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------------|-------------------------------------------|-------------|
| 1. | Distributed systems principles and Pargadigms Second | Andrew S.Tanenbaum, Maarten Van Steen. | |

Unit – II

| 2. | Architectures | | Lecturer s | Ref. No. |
|----|---------------|--------------------------------------------------------------------------------------------|---------------|----------|
| | a) | Architectural styles | 02 | 1 |
| | b) | System Architectures: Centralized Architectures, Decentralized Architectures, Hybrid | 03 | 1 |
| | c) | Architectures Versus Middleware Self-Management in Distributed systems | 02 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------------|-------------------------------------------|-------------|
| 1. | Distributed systems principles and Pargadigms Second | Andrew S.Tanenbaum, Maarten Van Steen. | |

Unit – III

| 3 | Pro | cesses | Lecturers Required | Ref. No. |
|---|-----|----------------|-----------------------|----------|
| | a) | Threads | 02 | 1 |
| | b) | Virtualization | 02 | 1 |
| | c) | Clients | 01 | 1 |
| | d) | Servers | 01 | 1 |
| | e) | Code Migration | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------------|-------------------------------------------|-------------|
| 1. | Distributed systems principles and Pargadigms Second | Andrew S.Tanenbaum, Maarten Van Steen. | |

Unit – IV

| 4. | Communication | | Lecturers Required | Ref. No. |
|----|---------------|--------------------------------|-----------------------|----------|
| | a) | Fundamentals | 01 | 1 |
| | b) | Remote Procedure Call | 01 | 1 |
| | c) | Message oriented communication | 01 | |
| | d) | Stream oriented communication | 01 | |
| | e) | Multicast communication | 02 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------------------------------|-------------------------------------------|-------------|
| 1. | Distributed systems principles and Pargadigms Second Edition | Andrew S.Tanenbaum, Maarten Van Steen. | |

Unit – V

| 5. | Nar | ning | Lecturer s | Ref. No. |
|----|-----|-----------------------------------|---------------|----------|
| | a) | Names, Identifiers, and Addresses | 02 | 1 |
| | b) | Flat Naming | 02 | 1 |

| c) | Structured Naming, Attribute-Based Naming | 03 | 1 | |
|----|-------------------------------------------|----|---|--|
|----|-------------------------------------------|----|---|--|

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------------|-------------------------------------------|-------------|
| 1. | Distributed systems principles and Pargadigms Second | Andrew S.Tanenbaum, Maarten Van Steen. | |

Unit – VI

| 5. | | Synchronization | Lecturer s | Ref. No. |
|----|----|-------------------------------------------------------------------------------------------------------------------------------|---------------|----------|
| | a) | Clock synchronization: Physical clocks, Global Positioning system, C lock synchronization Algorithms | 02 | 1 |
| | b) | Logical C locks | 01 | 1 |
| | c) | Mutual Exclusion: Centralized Algorithm, A Decentralized Algorithm, A Distributed Algorithm, A Token Ring Algorithm. | 03 | 1 |
| | d) | Global Positioning of Nodes | 02 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|--------------------------------|---------------------|-------------|
| 1. | Distributed systems principles | Andrew S.Tanenbaum, | |
| | and Pargadigms Second Edition | Maarten Van Steen. | |

| Name of Course | B.Sc. NT TY |
|-----------------|------------------------------|
| Semester | VSemester |
| Name of Subject | Linux Administration Part II |
| Subject Code | S5.CC.2 |

Silent Features:

Linux is a powerful, free and open source code Operating System available in market.it can be used for both purposes like desktop and server use.so from smartphones to cars, supercomputers and home appliances, the Linux operating system is everywhere. So by learning this subject student will capable, not only to learn the basic functions and task of operating system but also they can develop and release their own software on internet without any cost.

Objectives:

- This course shall build a platform for students to start their own enterprise
- For Making Student Job Ready
- To become familiar with open source software and user interface.
- To securely handle OS without any viruses and malwares.
- For easily use free software available on internet.
- To understand the basic operating system command.
- To understand the basic concept of shell programming

Utility of the course:

- Awareness of existing demanding trends in IT industry in order to get placement & research in open source market.
- Understand the Linux OS architecture.
- Install and use different types of distributions available in market..

Prerequisite:

• Basics of Operating System covered in Semester I.

| Sr. No. | Internet connectivity | | Lectures Required | Ref. No |
|------------|-----------------------|-------------------------------------------------|----------------------|---------|
| 1 | 1.1 | Common configuring information, | 1 | 1,2,4 |
| | 1.2 | Laying the foundation: the local host Interface | 2 | 1,2,3 |
| | 1.3 | Configuring Digital Subscriber Line | 2 | 1,2,3 |
| | 1.4 | Configuring dialup internet Access | 1 | 1,2 |
| | 1.5 | Troubleshooting Connection Problems | 1 | 1,4 |
| | 1.6 | Using networking tools. | 1 | 1,4 |

UNIT-I

| Sr. No | Name of Book | Writer | Publication |
|-----------|----------------------------------------|------------------------------------------|---------------------------------------------|
| 1 | Red Hat Linux 7 Unleashed | Bill Ball ,David Pitts | Techmedia SAMS publication |
| 2 | UNIX System Administration Handbook | Evi Nemeth,Garth Snyder,Scott Seebass | Person Education Asia (LPE)(III Edition) |
| 3 | Red Hat Linux and Fedora Unleashed | Bill Ball and Hoyt Duff | |
| 4 | Linux Administration Handbook | Evi Nemeth Prentice Hall | |

UNIT-II

| Sr. No. | | Working with oracle and Mysql in Linux | | Ref. No |
|------------|-----|----------------------------------------|---|---------|
| 2) | 2.1 | A brief Review of Database Basics, | 1 | 1,2,4 |
| | 2.2 | Installing & Configuring MySQL | 2 | 1,4 |
| | 2.3 | Oracle installation in Linux | 2 | 1,4 |

References:

| ~ | | | | | | |
|-----|----------------------------|-------------------------|-----------------------|--|--|--|
| Sr. | Name of Book | Writer | Publication | | | |
| No | | | | | | |
| 1 | Red Hat Linux 7 Unleashed | Bill Ball ,David Pitts | Techmedia SAMS | | | |
| 1 | | | publication | | | |
| 2 | UNIX System Administration | Evi Nemeth,Garth | Person Education Asia | | | |
| | Handbook | Snyder,Scott Seebass | (LPE)(III Edition) | | | |
| 2 | Red Hat Linux and Fedora | Bill Ball and Hoyt Duff | | | | |
| 3 | Unleashed | _ | | | | |
| 4 | Linux Administration | Evi Nemeth Prentice | | | | |
| | Handbook | Hall | | | | |

UNIT-III

| Sr. | Mar | naging servers in Linux | Lectures | Ref. |
|-----|-----|----------------------------------------|----------|--------|
| No. | | | Required | No |
| 3 | 3.1 | Configuring DHCP in linux | 3 | 1,2,3, |
| | 3.2 | Installing FTP Software | 2 | 2,4 |
| | 3.3 | Configuring Network File Services(NFS) | 2 | 1,4 |
| | 3.4 | Configuring SAMBA | 2 | 1,4 |

| Sr. | Name of Book | Writer | Publication |
|-----|----------------------------|-------------------------|-----------------------|
| No | | | |
| 1 | Red Hat Linux 7 Unleashed | Bill Ball ,David Pitts | Techmedia SAMS |
| - | | | publication |
| 2 | UNIX System Administration | Evi Nemeth,Garth | Person Education Asia |
| Δ. | Handbook | Snyder,Scott Seebass | (LPE)(III Edition) |
| 2 | Red Hat Linux and Fedora | Bill Ball and Hoyt Duff | |
| 3 | Unleashed | | |
| 4 | Linux Administration | Evi Nemeth Prentice | |
| | Handbook | Hall | |

| UNIT-IV | 7 |
|---------|---|
|---------|---|

| Sr. No. | | Handling Electronic Mail | | Ref. No |
|------------|-----|-----------------------------------------------------------------------------------------------|---|---------|
| 4) | 4.1 | How Email is Send & Received, , Basic Sendmail Configuration & Operation | 2 | 1,2,4 |
| | 4.2 | The Mail Transport Agent, Choosing a Mail Client Attachment – Sending Binary Files as Text | 1 | 4 |
| | 4.3 | Using Fetchmail to Retrieve Mail,Choosing a Mail Delivery Agent,Mail Daemons | 2 | 2,4 |

| Sr. No | Name of Book | Writer | Publication |
|-----------|----------------------------------------|------------------------------------------|---------------------------------------------|
| 1 | Red Hat Linux 7 Unleashed | Bill Ball ,David Pitts | Techmedia SAMS publication |
| 2 | UNIX System Administration Handbook | Evi Nemeth,Garth Snyder,Scott Seebass | Person Education Asia (LPE)(III Edition) |
| 3 | Red Hat Linux and Fedora Unleashed | Bill Ball and Hoyt Duff | |
| 4 | Linux Administration Handbook | Evi Nemeth Prentice Hall | |

UNIT-V

| Sr. No. | Managing File System in Linux | | Lectures Required | Ref. No |
|------------|-------------------------------|----------------------------------------------|----------------------|---------|
| 5) | 5.1 | The Linux File System | 2 | 1,4 |
| | 5.2 | Working with ext2,ext3 file system | 2 | 1,2 |
| | 5.3 | Creating file system in Linux | 2 | 1,4 |
| | 5.4 | Different file system available in Linux OS. | 2 | 1,4 |
| | 5.5 | Creating disk quota in Linux | 2 | 4 |

References:

| Sr. | Name of Book | Writer | Publication |
|-----|----------------------------|-------------------------|-----------------------|
| No | | | |
| 1 | Red Hat Linux 7 Unleashed | Bill Ball ,David Pitts | Techmedia SAMS |
| 1 | | | publication |
| 2 | UNIX System Administration | Evi Nemeth,Garth | Person Education Asia |
| 2 | Handbook | Snyder,Scott Seebass | (LPE)(III Edition) |
| 2 | Red Hat Linux and Fedora | Bill Ball and Hoyt Duff | |
| 3 | Unleashed | | |
| 4 | Linux Administration | Evi Nemeth Prentice | |
| 4 | Handbook | Hall | |

UNIT-VI

| Sr. No. | Mult | Multimedia Applications | | Ref. No |
|------------|------|----------------------------------------------------------------------------|---|---------|
| 6) | 6.1 | Burning CDs & DVDs in Fedora core | 1 | 1,2,4 |
| | 6.2 | Sound & Music, Viewing TV & Video Using Cameras with Fedora core Linux, | 2 | 1,2,4 |
| | 6.3 | Using Scanners in fedora Core Linux | 1 | 1,2,3,4 |

| Sr. No | Name of Book | Writer | Publication |
|-----------|----------------------------------------|------------------------------------------|---------------------------------------------|
| 1 | Red Hat Linux 7 Unleashed | Bill Ball ,David Pitts | Techmedia SAMS publication |
| 2 | UNIX System Administration Handbook | Evi Nemeth,Garth Snyder,Scott Seebass | Person Education Asia (LPE)(III Edition) |
| 3 | Red Hat Linux and Fedora Unleashed | Bill Ball and Hoyt Duff | |

| 4 | Linux Administration | Evi Nemeth Prentice | |
|---|----------------------|---------------------|--|
| 4 | Handbook | Hall | |

| Name of Course | B.Sc. NT TY |
|-----------------|--------------------------------|
| Semester | V Semester |
| Name of Subject | Windows Server 2012 ADC Part I |
| Subject Code | \$5.CC.3 |

Prerequisites: Knowledge of Basic Networking, client, server & Hardware components.

Course Objectives:

- Configure and Troubleshoot Domain Name System
- Maintain Active Directory Domain Services
- Manage User and Service Accounts
- Implement Group Policy Infrastructure
- Manage User Desktops using Group Policy
- Configure and Troubleshoot Remote Access
- Install, Configure and Troubleshoot Network Policy Server
- Implement Network Access Protection
- Optimize File Services
- Configure Encryption and Advanced Auditing
- Deploy and Maintain Server Images
- Implement Update Managements
- Monitor Windows Server 2012

Course Outcomes:

- Client and Server architecture that provide request and response
- It will help to establish End to End communication between devices

Sailent Features:

- New Server Manager: Create, Manage Server Groups
- Better Edition, SKU Selection
- A Command-Line First, GUI-Second Mentality
- Hyper-V Replication
- Expanded PowerShell Capabilities

| Sr. No. | Installing and configuring servers | | Lectures Required | Ref. No |
|------------|------------------------------------|-------------------------|----------------------|---------|
| 1 | 1.1 | Install servers | 2 | 1, 2 |
| | 1.2 | Configure servers | 2 | 1, 2 |
| | 1.3 | Configure local storage | 3 | 1, 2 |

UNIT-I

| Sr. No | Name of Book | Writer | Publication |
|-----------|-----------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------|
| 1. | MCTS Self-Paced Training Kit (Exam 70-410): Installing and Configuring Windows Server 2012 | Craig Zacker - | MCTS Self-Paced Training Kit (Exam 70- 410): |
| 2. | Installing and Configuring Windows Server 2012 | Ian Maclean | (Microsoft prepress) |

UNIT-II

| Sr. No. | | Configuring server roles and features | | Ref. No |
|------------|-----|-----------------------------------------|---|---------|
| 2 | 2.1 | Configure file and share access | 3 | 1, 2 |
| | 2.2 | Configure print and document services | 3 | 1, 2 |
| | 2.3 | Configure servers for remote management | 3 | 1, 2 |

References:

| Sr. | Name of Book | Writer | Publication | |
|----------|-----------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------|--|
| No | | | | |
| 1. | MCTS Self-Paced Training Kit (Exam 70-410): Installing and Configuring Windows Server 2012 | Craig Zacker - | MCTS Self-Paced Training Kit (Exam 70- 410): | |
| 2. | Installing and Configuring Windows Server 2012 | Ian Maclean | (Microsoft prepress) | |
| UNIT-III | | | | |

| Sr. No. | | Configuring Hyper-V | | Ref. No |
|------------|-----|-----------------------------------------------|---|---------|
| 3 | 3.1 | Create and configure virtual machine settings | 3 | 1, 2 |
| | 3.2 | Create and configure virtual machine storage | 3 | 1, 2 |
| | 3.3 | Create and configure virtual networks | 3 | 1, 2 |

References:

| Sr. | Name of Book | Writer | Publication |
|-----|-------------------------------|----------------|------------------------|
| No | | | |
| | MCTS Self-Paced Training | Craig Zacker - | MCTS Self-Paced |
| 1. | Kit (Exam 70-410): Installing | | Training Kit (Exam 70- |
| | and Configuring Windows | | 410): |
| | Server 2012 | | |
| 2 | Installing and Configuring | Ian Maclean | (Microsoft prepress) |
| Ζ. | Windows Server 2012 | | |

UNIT-IV

| Sr. No. | Deplo | Deploying and configuring core network services | | Ref. No |
|------------|-------|-------------------------------------------------|---|---------|
| | 4.1 | Configure IPv4 and IPv6 addressing | 3 | 1, 2 |
| | 4.2 | Configure servers | 3 | 1, 2 |
| | 4.3 | Deploy and configure the DNS Service | 3 | 1, 2 |

| Sr. | Name of Book | Writer | Publication |
|-----|-----------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------|
| No | | | |
| 1. | MCTS Self-Paced Training Kit (Exam 70-410): Installing and Configuring Windows Server 2012 | Craig Zacker - | MCTS Self-Paced Training Kit (Exam 70- 410): |
| 2. | Installing and Configuring Windows Server 2012 | Ian Maclean | (Microsoft prepress) |

UNIT-V

| Sr. No. | Installing and administering Active Directory | | Lectures Required | Ref. No |
|------------|-----------------------------------------------|----------------------------------------------|----------------------|---------|
| 5 | 5.1 | Install domain controllers | 3 | 1, 2 |
| | 5.2 | Create and manage Active Directory users | 4 | 1, 2 |
| | 5.3 | Create and manage Active Directory groups | 3 | 1, 2 |

References:

| Sr. No | Name of Book | Writer | Publication |
|-----------|-----------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------|
| 1. | MCTS Self-Paced Training Kit (Exam 70-410): Installing and Configuring Windows Server 2012 | Craig Zacker - | MCTS Self-Paced Training Kit (Exam 70- 410): |
| 2. | Installing and Configuring Windows Server 2012 | Ian Maclean | (Microsoft prepress) |

UNIT-VI

| Sr. | Creat | Creating and managing Group Policy | | Dof No |
|-----|-------|-----------------------------------------------|---|----------|
| No. | | | | Kel. INO |
| 6 | 6.1 | Create Group Policy Objects | 3 | 1, 2 |
| | 6.2 | Configure security policies | 4 | 1, 2 |
| | 6.3 | Configure application restriction Policies | 3 | 1, 2 |
| | 6.4 | Configure Windows Firewall | 3 | 1, 2 |

| Sr. | Name of Book | Writer | Publication |
|-----|-------------------------------|----------------|------------------------|
| No | | | |
| | MCTS Self-Paced Training | Craig Zacker - | MCTS Self-Paced |
| 1. | Kit (Exam 70-410): Installing | | Training Kit (Exam 70- |
| | and Configuring Windows | | 410): |
| | Server 2012 | | |
| 2 | Installing and Configuring | Ian Maclean | (Microsoft prepress) |
| 2. | Windows Server 2012 | | |

| Name of Course | B.Sc. NT SY |
|-----------------|--------------------------------|
| Semester | V Semester |
| Name of Subject | Network Administration Part II |
| Subject Code | S5.CC.4 |

Prerequisites: Knowledge of Basic Networking & Hardware components.

Course Objectives:

- Understanding N/W technologies
- Understanding the working of industrial N/W
- Brief understanding of VLANs & Trunks
- Understanding Industrial N/W devices (Router & Switch)
- Describe the role of dynamic routing protocols and place these protocols in the context of modern network design
- Understand N/W protocols like RIP, OSPF & EIGRP according to industry requirement
- Detailed understanding of VLANs, Trunks & STP

Course Outcomes:

- Practical hands-on will help to interconnect the N/W components & design industrial N/w
- Inter VLAN routine will help to establish End to End communication between devices

Silent Features:

- You can develop your own N/W design.
- You can develop your own N/W design & configure commands in infrastructural N/W devices.

| Unit – I | [|
|----------|---|
|----------|---|

| 1. | Man | aging a Cisco Internetwork | Lecturer s | Ref. No. |
|----|-----|-------------------------------------------|---------------|----------|
| | a) | The Internal Components of a Cisco Router | 01 | 1 |
| | b) | The Router Boot Sequence | 02 | 1 |
| | c) | Managing Configuration Register | 03 | 1 |
| | d) | a. Backing Up and Restoring the Cisco IOS | 02 | 1 |
| | | b. Checking Network Connectivity and | | |
| | | Troubleshooting | | |

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | CCNA | Todd Lammle | SYBEX |

Unit – II

| 2. | Networ | rk Address Translation (NAT) | Lecturer s | Ref. No. |
|----|--------|-----------------------------------------------|---------------|----------|
| | a) | Use of Network Address Translation | 02 | 1 |
| | b) | NAT Names & Types Static Dynamic PAT | 03 | 1 |
| | c) | Testing and Troubleshooting NAT | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | CCNA | Todd Lammle | SYBEX |

Unit – III

| 3 | Inte | rnet Protocol Version 6 (IPv6) | Lecturers Required | Ref. No. |
|---|------|----------------------------------------------------------------------|-----------------------|----------|
| | a) | The Benefits and Uses of IPv6 | 02 | 1 |
| | b) | IPv6 Addressing and Expressions How IPv6 Works in an Internetwork | 03 | 1 |
| | c) | IPv6 Routing Protocols | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | CCNA | Todd Lammle | SYBEX |

Unit – IV

| 4. | Wide A | Area Networks | Lecturers Required | Ref. No. |
|----|--------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|----------|
| | a) | Introduction to Wide Area Networks | 03 | 1 |
| | b) | Cable and DSL Cabling the Serial Wide Area Network | 03 | 1 |
| | c) | High-Level Data-Link Control (HDLC) Protocol Point-to-Point Protocol (PPP) Frame Relay Virtual Private Networks | 02 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | CCNA | Todd Lammle | SYBEX |

Unit – V

| 5. | Secu | rity | Lecturer s | Ref. No. |
|----|------|--------------------------------------------------------------------------------|---------------|----------|
| | a) | Perimeter, Firewall, and Internal Routers | 02 | 1 |
| | b) | Introduction to Access Lists Standard Access Lists Extended Access Lists | 02 | 1 |
| | c) | Monitoring Access Lists | 03 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | CCNA | Todd Lammle | SYBEX |

Unit – VI

| 5. | | BGP | Lecturer s | Ref. No. |
|----|----|----------------------------|---------------|----------|
| | a) | Introduction to BGP | 02 | 1 |
| | b) | BGP FSM | 01 | 1 |
| | c) | eBGP neighbor ship | 03 | 1 |
| | d) | BGP protocol configuration | 02 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | CCNA | Todd Lammle | SYBEX |

| Name of Course | B.Sc. NT TY |
|-----------------|------------------------------------|
| Semester | V Semester |
| Name of Subject | Elective- CCENT |
| Subject Code | S5.CC.5 (Core Course Elective – I) |

Prerequisites: Knowledge of Basic Networking Concept.

Course Objectives:

- Understand different types of networks, various topologies and application of networks.
- Understand types of addresses, data communication
- Understand the concept of networking models, protocols, functionality of each layer.

Course Outcomes:

- Learn basic networking hardware and tools.
- Practice to design peer to peer network.
- Practice to design Client Server Network.

Silent Features:

• You can develop your own N/W design.

| | Unit – I | | | | |
|----|-----------------|----------------------------------------------------------------|---------------|----------|--|
| 1. | 1. Introduction | | Lecturer s | Ref. No. | |
| | a) | Network Essentials, Network Definitions, Network Topologies | 1 | 1 | |
| | b) | Network Categories, The OSI Reference | 2 | 1 | |
| | c) | Network Components, Protocol Data Units | 2 | 1 | |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------------------------------------|------------------------------------|-------------|
| 1 | CCENT Cisco Certified, Entry Networking Technician, Study Guide | Matthew Walker and Angie Walker | |

Unit – II

| 2. | TCF | P/IP | Lecturer s | Ref. No. |
|----|-----|--------------------------------------------------------------------------------------------------------------|---------------|----------|
| | a) | TCP/IP and OSI Reference Model | 1 | 1 |
| | b) | Application Layer Functions and Protocols, DNS, DHCP, Other Protocols | 1 | 1 |
| | c) | Transport Layer Functions and Protocols | 1 | 1 |
| | d) | Internet and Network Access Layer Functions and Protocols, IP and ICMP, Network Access Layer Protocols | 1 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------------------------------------|------------------------------------|-------------|
| 1 | CCENT Cisco Certified, Entry Networking Technician, Study Guide | Matthew Walker and Angie Walker | |

Unit – III

| 3. | Netv | vork Media and Devices | Lecturer s | Ref. No. |
|----|------|-----------------------------------------------------------------------------------------------------------------|---------------|----------|
| | a) | Network Media, Media Terminology, Copper Cabling ,Fiber Cabling | 3 | 1 |
| | b) | Network Devices, NICs, Transceivers, Repeaters, and Hubs, Bridges and Switches, Routers, Security Devices | 3 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------------------------------------|------------------------------------|-------------|
| 1 | CCENT Cisco Certified, Entry Networking Technician, Study Guide | Matthew Walker and Angie Walker | |

Unit – IV

| 4. | Ethe | ernet Fundamentals | Lecturer s | Ref. No. |
|----|------|------------------------------------------------------|---------------|----------|
| | a) | Ethernet History | 1 | 1 |
| | b) | Ethernet Characteristics, Frame Types and Addressing | 2 | 1 |
| | c) | Ethernet Standards | 1 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------------------------------------|------------------------------------|-------------|
| 1 | CCENT Cisco Certified, Entry Networking Technician, Study Guide | Matthew Walker and Angie Walker | |

Unit – V

| 5. | Switching: Moving Data Inside Your Network | | Lecturer s | Ref. No. |
|----|--------------------------------------------|----------------------------------------------------------------|---------------|----------|
| | a) | Switch Fundamentals, Physical Features | 1 | 1 |
| | b) | Switch Initialization Functions, Duplex and Speed | 2 | 1 |
| | c) | Switch Modes, Switch Design | 2 | 1 |
| | d) | Switch Installation and Connections, Looping and STP, VLANs | 3 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------------------------------------|------------------------------------|-------------|
| 1 | CCENT Cisco Certified, Entry Networking Technician, Study Guide | Matthew Walker and Angie Walker | |

Unit – VI

| 6. | Rou | ting Essentials and IP Addressing | Lecturer s | Ref. No. |
|----|-----|--------------------------------------------------------------------------|---------------|----------|
| | a) | Routing Fundamentals | 1 | 1 |
| | b) | Routing Logic and Data Flow | 2 | 1 |
| | c) | Routed and Routing Protocols , An Introduction to IP Addressing | 3 | 1 |
| | d) | IP Address Construction, IP Address Classes , IP Address Technologies | 3 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------------------------------------|------------------------------------|-------------|
| 1 | CCENT Cisco Certified, Entry Networking Technician, Study Guide | Matthew Walker and Angie Walker | |

| Name of Course | B.Sc. NT TY |
|-----------------|-------------------------------------|
| Semester | V Semester |
| Name of Subject | Cloud Computing |
| Subject Code | S5.CC.5 (Core Course Elective – II) |

Silent Features:

It is most demanding area in IT industry. Every organization now days, trying to migrate to cloud computing from different perspectives. It is associated with architectural modelling and service providing. Other areas like resource pooling, cost economics, elasticity of organization also use clouds. Thus it has become extremely important to understand the key defining features of cloud computing.

Learning Objectives:

- To Study basics of cloud computing, and comprehend the terminology, tools and technologies associated with today's top cloud platforms.
- To provide the programmer's perspective of working of Cloud Computing.
- Implement Simple Cloud programs to solve simple problems.

Utility of the course:

• Awareness of existing demanding trends for Clouds and Virtualizations in the IT industry in order to get placement as well as in research

Prerequisite:

• Knowledge about Computer Hardware and Networking.

Unit – I

| 1. | 1. Enterprise computing: a retrospective | | Lecturer s | Ref. No. |
|----|------------------------------------------|------------------------------------------------------------------------|---------------|----------|
| | | | Poquirod | |
| | a) | Introduction | 02 | 1 |
| | b) | Mainframe architecture | 01 | 1 |
| | c) | Client- server architecture 3 - tier architectures with TP monitors | 05 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|----------------------------|---------------|-------------|
| 1. | Enterprise Cloud Computing | Gautam Shroff | |
| | Application | | |

Unit – II

| 2 | The internet as a platform | | Lecturer | Ref. |
|----|----------------------------|----------------------------------------------|----------|------|
| 4. | Inci | | S | No. |
| | a) | Internet technology and web | 03 | 1 |
| | | enabled applications | | |
| | b) | Web application servers Internet of services | 03 | 1 |
| | c) | Infrastructure as a service: Amazon EC2 | 02 | 1 |
| | | Platform as a service: Google App Engine | | |
| | | Microsoft Azure | | |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------|---------------|-------------|
| 1. | Enterprise Cloud Computing | Gautam Shroff | |
| | : Technology, Architecture, | | |
| | Application | | |

Unit- III

| 3. | Softwa | are as a service and cloud computing | Lecturer s | Ref. No. |
|----|--------|---------------------------------------------------------|---------------|----------|
| | a) | Emergence of software as a service | 04 | 1 |
| | b) | Successful SaaS architectures Dev 2.0 platforms | 03 | 1 |
| | c) | Cloud computing Dev 2.0 in the cloud for enterprises | 02 | 1 |

References:

| Sr. | Name of the Book | Author | Publication |
|-----|--------------------------------------------------------------------------|---------------|-------------|
| No. | | | |
| 1. | Enterprise Cloud Computing : Technology, Architecture, Application | Gautam Shroff | |

Unit- IV

| 4. | Data in the cloud | | Lecturers Required | Ref. No. |
|----|-------------------|-------------------------------------------------------------------------|-----------------------|----------|
| | a) | Relational databases | 04 | 1 |
| | b) | Cloud file systems: GFS and HDFS | 03 | 1 |
| | c) | BigTable, HBase and Dynamo Cloud data stores: Datastore and SimpleDB | 01 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------|---------------|-------------|
| 1. | Enterprise Cloud Computing | Gautam Shroff | |
| | : Technology, Architecture, | | |
| | Application | | |

Unit V

| 5. | MapR | educe and extensions | Lecturer s Require | Ref. No. |
|----|------|-----------------------------------------------------------------------------------------|--------------------------|----------|
| | a) | Parallel computing The MapReduce mode | 04 | 1, 2 |
| | | Parallel efficiency of MapReduce | | |
| | b) | Relational operations using MapReduce Enterprise batch processing using MapReduce | 03 | 1, 2 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------|---------------|-------------|
| 1. | Enterprise Cloud Computing | Gautam Shroff | |
| | : Technology, Architecture, | | |
| | Application | | |

Unit VI

| 6. | Dev 2.0 |) platforms | Lecturer s | Ref. No. |
|----|---------|-------------------------------------------------------------------------------------------|---------------|----------|
| | a) | Salesforce.com's Force.com platform TCS InstantApps on Amazon cloud | 04 | 1 |
| | b) | More Dev 2.0 platforms and related efforts Advantages, applicability and limits of Dev | 03 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|--------------------------------------------------------------------------|---------------|-------------|
| 1. | Enterprise Cloud Computing : Technology, Architecture, Application | Gautam Shroff | |

| Name of Course | B.Sc. NT TY |
|-----------------|--------------------------------------|
| Semester | V Semester |
| Name of Subject | VMware |
| Subject Code | S5.CC.5 (Core Course Elective – III) |

Prerequisites: To understand the design and implementation of Operating System.

Course Objectives:

- Describe the software defined data center
- Deploy an ESXihost and create virtual machines
- Describe vCenter Server architecture
- Configure virtual networks with vSphere standard switches
- Manage virtual machines, templates, clones, and snapshots
- Monitor resource usage and manage resource pools

Course Outcomes:

- Install and configure virtualization technology such as VMware
- Install and configure virtual server components such as vCenter
- Configure and manage virtual network and storage such as vCenter server or ESxi.

Silent Features:

- Manage and migrate virtual machines.
- Access control, resource monitoring, storage management, scalability, data availability and protection

Unit – I

| 1. | Intro | oduction | Lecturer s | Ref. No. |
|----|-------|--------------------------------------------|---------------|----------|
| | a) | VMware workstation | 02 | 1 |
| | b) | VMware player, Virtual box | 01 | 1 |
| | c) | Introduce Virtualization Introduce Virtual | 02 | 1 |
| | d) | Introduce vSphere components | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------|----------------|-------------|
| 1. | Virtualization For Dummies Paperback | Bernard Golden | |

Unit – II

| 2 | VM | ware ESX and ESXi | Lecture Required | Ref.No |
|---|----|--------------------------------------------|------------------|--------|
| | a) | Introduce the architecture of ESX and ESXi | 02 | 1 |
| | b) | Manually configure ESX/ESXi | 01 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------|----------------|-------------|
| 1. | Virtualization For Dummies Paperback | Bernard Golden | |

Unit- III

| 3. | Netwo | rking | Lecturer s | Ref. No. |
|----|-------|----------------------------------------------------------|---------------|----------|
| | a) | Create, configure, and manage vNetwork standard switches | 04 | 1 |
| | b) | Create, configure, and manage network connections | 03 | 1 |
| | c) | Create, configure, and manage port groups | 02 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------|----------------|-------------|
| 1. | Virtualization For Dummies Paperback | Bernard Golden | |

Unit- IV

| 4. | Virtua | l Machines | Lecturers Required | Ref. No. |
|----|--------|------------------------------------------------------------------------------------------------------|-----------------------|----------|
| | a) | Deploy virtual machines using the Create New Virtual Machine wizard | 03 | 1 |
| | b) | templates, cloning | 02 | 1 |
| | c) | VMware vCenter Converter Modify and manage virtual machines Perform Storage vMotion migrations | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------|----------------|-------------|
| 1. | Virtualization For Dummies Paperback | Bernard Golden | |

Unit V

| 5. | Access | Control AND Resource Monitoring | Lecturer s Bequire | Ref. No. |
|----|--------|------------------------------------------------------------------------------|--------------------------|----------|
| | a) | Control user access through roles and permissions | 02 | 1 |
| | b) | Control virtual machine access to CPU, memory | 01 | 1 |
| | c) | Introduce VMkernel methods for optimizing CPU and memory usage | 02 | 1 |
| | d) | Monitor resource usage using vCenter Server performance graphs and alarms | 01 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------|----------------|-------------|
| 1. | Virtualization For Dummies Paperback | Bernard Golden | |

Unit VI

| 6. | Data P | rotection | Lecturer s | Ref. No. |
|----|--------|-----------------------------------------------------------------|---------------|----------|
| | a) | Back up and recover virtual machines using VMware Data Recovery | 02 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------------|----------------|-------------|
| 1. | Virtualization For Dummies Paperback | Bernard Golden | |

| Name of Course B.Sc(NETWORK TECHNOLOGY) Third Year | |
|----------------------------------------------------|------------------------------|
| Semester | V Semester |
| Name of Subject | Linux Administration-part II |
| Subject code | S5.Lab.1 |

Silent Features:

Linux is a powerful, free and open source code Operating System available in market.it can be used for both purposes like desktop and server use.so from smartphones to cars, supercomputers and home appliances, the Linux operating system is everywhere. So by learning this subject student will capable, not only to learn the basic functions and task of operating system but also they can develop and release their own software on internet without any cost.

Objectives:

- This course shall build a platform for students to start their own enterprise
- For Making Student Job Ready
- To become familiar with open source software and user interface.
- To securely handle OS without any viruses and malwares.
- For easily use free software available on internet.
- To understand the basic operating system command.
- To understand the basic concept of shell programming

Utility of the course:

- Awareness of existing demanding trends in IT industry in order to get placement & research in open source market.
- Understand the Linux OS architecture.
- Install and use different types of distributions available in market..

Prerequisite:

• Basics of Operating System covered in Semester I.

PRACTICAL List:

- 1) Execute networking commands in Linux.
- 2) Configuring Mysql in Linux.
- 3) Execute the Mysql commands in detail.
- 4) Creating file system in Linux.
- 5) Configuring ftp server and commands of ftp server.
- 6) Configuring mail server and commands
- 7) Burning CD and DVD in Linux.
- 8) Configuring network printer .
- 9) Printing commands
- 10) DHCP configuration in Linux.
- 11) Working with shell scripting
- 12) Any 5 programs on shell scripting.

| Name of Course | B.Sc(NETWORK TECHNOLOGY) Third Year |
|-----------------|-------------------------------------|
| Semester | V Semester |
| Name of Subject | Windows Server 2012 ADC Part - I |
| Subject code | S5.Lab.2 |

Prerequisites: Knowledge of Basic Networking, client, server & Hardware components.

Course Objectives:

- Configure and Troubleshoot Domain Name System
- Maintain Active Directory Domain Services
- Manage User and Service Accounts
- Implement Group Policy Infrastructure
- Manage User Desktops using Group Policy
- Configure and Troubleshoot Remote Access
- Install, Configure and Troubleshoot Network Policy Server
- Implement Network Access Protection
- Optimize File Services
- Configure Encryption and Advanced Auditing
- Deploy and Maintain Server Images
- Implement Update Managements
- Monitor Windows Server 2012

Course Outcomes:

- Client and Server architecture that provide request and response
- It will help to establish End to End communication between devices

Sailent Features:

- New Server Manager: Create, Manage Server Groups
- Better Edition, SKU Selection
- A Command-Line First, GUI-Second Mentality
- Hyper-V Replication
- Expanded PowerShell Capabilities

Practical List

- 1) Creating server
- 2) Creating domain
- 3) Creating ADDS
- 4) Creating users
- 5) Creating groups
- 6) Creating computers
- 7) Creating DNS
- 8) Creating group policy
- 9) Creating IPV4
- 10) Creating IPV6
- 11) Creating
- 12) Creatiing Hyper-V

| Name of Course | B.Sc(NETWORK TECHNOLOGY) Third Year |
|-----------------|-------------------------------------|
| Semester | V Semester |
| Name of Subject | Network Administration-part II |
| Subject code | S5.Lab.3 |

Prerequisites: Knowledge of Basic Networking & Hardware components.

Course Objectives:

- Understanding N/W technologies
- Understanding the working of industrial N/W
- Brief understanding of VLANs & Trunks
- Understanding Industrial N/W devices (Router & Switch)
- Describe the role of dynamic routing protocols and place these protocols in the context of modern network design
- Understand N/W protocols like RIP, OSPF & EIGRP according to industry requirement
- Detailed understanding of VLANs, Trunks & STP

Course Outcomes:

- Practical hands-on will help to interconnect the N/W components & design industrial N/w
- Inter VLAN routine will help to establish End to End communication between devices

Silent Features:

- You can develop your own N/W design.
- You can develop your own N/W design & configure commands in infrastructural N/W devices.

| Sr. No | Title of program | Require Hours |
|-----------|----------------------------------------|------------------|
| 1 | Router Basic Show Command | 2 |
| 2 | Router Password Set | 2 |
| 3 | Lab Configuration Static NAT | 2 |
| 4 | Lab Configuration Dynamic NAT | 2 |
| 5 | Lab Configuration PAT NAT | 2 |
| 6 | Lab Configuration Standard access list | 2 |
| 7 | Lab Configuration Extended access list | 2 |
| 8 | Backup or Restore IOS OS | 2 |
| 9 | Lab Configuration BGP Protocol | 2 |
| 10 | Network Troubleshooting | 2 |

| Sr.No | Book | Author | Publication |
|-------|------|--------|-------------|
| 1 | CCNA | Todd | SYBEX |
| | | Lammle | |

| Name of Course | B.Sc. NT TY |
|-----------------|-------------|
| Semester | V Semester |
| Name of Subject | Java Script |
| Subject Code | S5.SEC1 (1) |

Prerequisites:

- Basic knowledge of object-oriented programming concepts
- Basic knowledge of HTML

Course Objectives:

- What JavaScript is and where it is used.
- Basic programming concepts like variables, data types and conditional statements.
- What functions are and why they're useful.
- The basic syntax of the JavaScript programming language.
- Implementation of different types of object in JavaScript.
- To introduce concept of regular expression.

Course Outcomes:

- Use operators, variables, arrays, control structures, functions and objects in JavaScript.
- Identify popular JavaScript Libraries.
- Use regular expressions for form validation.
- Use Array, Math and String methods to access proper data.
- To build dynamic web pages and web applications.

Salient Features:

- Able to use concept of JavaScript to develop dynamic webpages
- Abe to use built in functions in web applications

Practical Assignments –

| Sr. No. | Name of Assignment |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Write a JavaScript program to print "Hello World". |
| 2 | Write a JavaScript program to perform all arithmetic operations. |
| 3 | Write a JavaScript program to find out entered number is even or odd. |
| 4 | Write a menu driven program in JavaScript, which has following options(Use of switch statement).1. Addition2. Subtraction |
| 5 | Write a JavaScript program to display series 1, 2,, 10 using while loop. |
| 6 | Write a JavaScript program to display multiplication table of any number entered through |
| 7 | Write a JavaScript program to find the factorial value of any number entered through the keyboard using for loop. |
| 8 | Write a JavaScript program to demonstrate concept of global and local variables. |
| 9 | Write a recursive function in JavaScript to obtain the factorial value of any number entered |
| 10 | Write a JavaScript program to demonstrate array methods. |
| 11 | Write a JavaScript program to demonstrate math methods. |
| 12 | Write a JavaScript program to demonstrate string methods. |
| 13 | Write a JavaScript program to demonstrate concept of regular expression. |

| Sr. No. | Name of the Book | | Author | Publication |
|------------|--------------------------------|----|--------------------------------------|----------------------------------------|
| 1 | JavaScript 2.0 - T Complete | he | Thomas Powell and Fritz Schneider | McGraw-Hill 2 nd Edition |

| Name of Course | B.Sc. NT TY |
|-----------------|-------------|
| Semester | V Semester |
| Name of Subject | MySQL |
| Subject Code | S5.SEC1 (2) |

Prerequisites:

• Basic knowledge of operating system & DBMS.

Course Objectives:

- To understand what is MySQL & its uses.
- To understand basic SQL queries.
- To understand different numerical, string & date handling function.
- Implementation and representation of different type relations in table.
- To understand back and restore procedure.
- To understand repairing database.

Course Outcomes:

- Detailed understanding of MySQL database.
- Knowledge of writing SQL queries.
- Knowledge of maintaining relation between table and database normalization.
- Understanding different numerical, string handling and date handling function.

Salient Features:

- Able to use concept database normalization.
- \circ Abe to use maintaining relationship between tables and joining table.
- 1) SQL* formatting commands
- 2) To create a table, alter and drop table.
- 3) To perform select, update, insert and delete operation in a table.
- 4) To make use of different clauses viz where, group by, having, order by, union and intersection,
- 5) To study different constraints.
- 6) To use oracle function viz aggregate, numeric, conversion, string function.
- 7) To understand use and working with joins.
- 8) To make use of transaction control statement viz rollback, commit and save point.
- 9) To make views of a table.
- 10) To make indexes of a table.
- 11) To understand working with PL/SQL
- 12) To implement Cursor on a table.
- 13) To implement trigger on a table

Books Recommended:

- 1. Baron Schwartz, High Performance MySQL, O'Reilly, 2012.
- 2. Vikram Vaswani , The Complete Reference MySQL , McGraw Hill Educations, 2004.

| Name of Course | B.Sc. NT TY |
|-----------------|-----------------------|
| Semester | V Semester |
| Name of Subject | Accounting with Tally |
| Subject Code | S5.SEC1 (3) |

- 1. Demonstrate company creation.
 - Accounting only
 - Accounting with inventory
- 2. Demonstrate create/ display / Alter group.
 - Single group
 - Multiple groups
- 3. Demonstrate create / display / Alter ledger.
 - Single ledger
 - Multiple ledger
- 4. Demonstrate voucher type.
 - Create voucher type
 - Alter voucher
- 5. Demonstrate accounting voucher creation / deletion / cancellation
 - Payment voucher
 - Receipt voucher
 - Sales voucher
 - Purchase voucher
 - Contra entry
 - Debit Note
 - Credit note
 - Journal entry
- 6. Demonstrate backup facility.
 - Single file
 - Multiple file
- 7. Demonstrate restore facility.
 - Single file
 - Multiple files
- 8. Demonstrate multiple accounting print.
 - Account book
 - i. Individual ledger
 - ii. Single ledger
 - iii. Cash book
 - iv. Bank book
- 9. Demonstrate export facility.
- 10. Display reports
 - Balance sheet
 - Profit and loss account
 - Trial balance
 - Ledger
- 11. Display trial balance by creating
 - New column
 - Alter column
 - Auto column
- 12. Demonstrate create inventory item
- 13. Demonstrate accounting features.

| Name of Course | B.Sc. NT TY |
|-----------------|------------------|
| Semester | VI Semester |
| Name of Subject | Network Security |
| Subject Code | S6. CC.1 |

Prerequisites:

- Knowledge of computer networks.
- Another area is preventing access to certain files on a machine or in a network: Antivirus programs, Access control and rights management make up this field.

Course Objectives:

- To understand the fundamentals of Cryptography
- To acquire knowledge on standard algorithms used to provide confidentiality, integrity and authenticity
- To understand the various key distribution and management schemes
- To understand how to deploy encryption techniques to secure data in transit across data networks
- To design security applications in the field of Information technology
- To understand various protocols for network security to protect against the threats in the networks.

Course Outcomes:

- Analyze the vulnerabilities in any computing system and hence be able to design a security solution.
- Evaluate security mechanisms using rigorous approaches, including theoretical.
- Compare and Contrast different IEEE standards and electronic mail security
- Do research in the emerging areas of cryptography and network security.

Silent Features:

- Identify the security issues in the network and resolve it.
- To be able to secure a message over insecure channel by various means.
- Provide security of the data over the network.
- Protect any network from the threats in the world.

Unit – I

| 1. | . Attacks on Computers and Computer Security | | Lecturer s | Ref. No. |
|----|----------------------------------------------|-------------------------------------|---------------|----------|
| | a) | Introduction, The Need for Security | 02 | 1 |
| | b) | Principles of Security | 01 | 1 |
| | c) | Types of Attacks | 03 | 1 |
| | d) | A Model for network security. | 01 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | Ethical Hacking | Ankit Fadia | |

Unit – II

| 2 | Cryptography: Concepts and Techniques | | Lecturers | Ref. |
|----|---------------------------------------|-----------------------------------------------------------------------------------|-----------|------|
| 4. | CI | yptography. Concepts and reeninques | Required | No. |
| | a) | Plain text and Cipher Text, Substitution Techniques, Transportation Techniques | 04 | 1 |
| | b) | Encryption and Decryption, Symmetric and Asymmetric Key Cryptography | 02 | 1 |
| | c) | Steganography | 01 | 1, 2 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | Ethical Hacking | Ankit Fadia | |

Unit- III

| 3. | D | omain Name Disputes and Trademark | Lecturer s | Ref. No. |
|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|
| | a) | Concept of Domain Names | 02 | 1 |
| | b) | New Concepts in Trademark JurisprudenceCyber squatting, Reverse, ijacking, Meta tags, Framing, Spamming, Jurisdiction in Trademark Dispute | 05 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|--------------------|--------------|-------------|
| 1. | Cyber Law in India | Farooq Ahmad | |

Unit- IV

| 4. | Th | e Cyber Crimes | Lectur ers | Ref. No. |
|----|----|---------------------------------------------------------|---------------|----------|
| | a) | Tampering with Computer Source | 04 | 1 |
| | b) | Hacking with Computer System, Publishing of Information | 03 | 1 |
| | c) | Digital Signature Certificate | 01 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|--------------------|--------------|-------------|
| 1. | Cyber Law in India | Farooq Ahmad | |

Unit V

| 5. | Int | troduction Of Ethical Hacking | Lecturer s | Ref. No. |
|----|-----|------------------------------------------------------------------------|---------------|----------|
| | a) | Information gathering, Foot printing, Active / Passive, Scanning | 04 | 1 |
| | b) | Sniffers, Hacking by stealth, Virus, Trojans, Binders , Key loggers | 03 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|--------------------|--------------|-------------|
| 1. | Cyber Law in India | Farooq Ahmad | |

Unit VI

| 6. | Stı | ndy Of Firewall And Network Security Configuration | Lecture rs Requir | Ref. No. |
|----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------|
| | a) | Introduction of Firewall, Types of Firewall, Configuring of Firewall | 02 | 1 |
| | b) | Open source Firewall, Importance of FirewallModem/Router Configuration, WI-FI Configuration, V-LAN Configuration, Proxy Server Configuration | 04 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------|-------------|-------------|
| 1. | Ethical Hacking | Ankit Fadia | |

| Name of Course | B.Sc. NT TY |
|-----------------|----------------------|
| Semester | VI Semester |
| Name of Subject | Exchange Server 2010 |
| Subject Code | \$6.CC.2 |

Prerequisites:

- Fundamental knowledge of network technologies including Domain Name System (DNS) and firewall technologies.
- Experience with the Microsoft Windows Server 2003 and Microsoft Windows Server 2008 operating systems, though experience with previous versions of Exchange Server is not required

Course Objectives:

- Install and deploy Exchange Server 2010
- Configure the Client Access server role in Exchange Server 2010
- Manage message transport in Exchange Server 2010
- Configure the secure flow of messages between the Exchange Server organization and the Internet
- Transition an Exchange Server 2003 or Exchange Server 2007 organization to Exchange Server 2010

Course Outcomes:

- Deploying Exchange Server 2010
- Best practice to Configure Mailbox server roles
- Best practice to Manage mailboxes in Exchange Server 2010
- Best practice to Configure the Client Access server role

Silent Features:

- You can configure email server in our organization.
- Those aspiring to be enterprise-level messaging administrators.
- IT generalists and help desk professionals who want to learn about Microsoft Exchange Server 2010

Unit – I

| 1. | Inst | alling Exchange Server 2010 | Lecturer s | Ref. No. |
|----|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------|
| | a) | Configure the Environment for Exchange Server 2010, Preparing a New Environment for Exchange 2010, Preparing for Coexistence and Migration | 02 | 1 |
| | b) | Exchange Server 2010, Hardware and Software Requirements | 03 | 1 |
| | c) | Installation of Exchange Server2010, Configuring Server Roles and Features for Exchange, Deploy Exchange Server 2010 Roles, Installing Exchange Server 2010 | 05 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------|--------|-------------------------|
| 1. | Configuring Microsoft Exchange Server 2010 Pro | | (Microsoft Publication) |

Unit – II

| 2. | Exchar | nge Databases and Address Lists | Lecturer s | Ref. No. |
|----|--------|-------------------------------------------------------------------------------------------------|---------------|-------------|
| | a) | Deploying Exchange Databases, Configuring Exchange Databases | 03 | 1 |
| | b) | Managing Mailbox Databases, Managing Public Folder Databases, Address List Configuration, | 03 | 1 |
| | c) | Creating and Configuring an Address List, Working with Offline Address | 02 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------|--------|-------------------------|
| 1. | Configuring Microsoft Exchange Server 2010 Pro | | (Microsoft Publication) |

Unit- III

| 3. | Excha | nge Mailboxes | Lecturer s | Ref. No. |
|----|-------|------------------------------------------|---------------|----------|
| | a) | Mailbox Configuration, Creating | 04 | 1 |
| | | Mailboxes, Linked Mailboxes, Configuring | | |
| | | Mailbox Properties, Moving Mailboxes, | | |
| | | Disabling, Removing, and Reconnecting | | |
| | b) | Managing Recipients and Distribution | 03 | 1 |
| | | Groups, Mail Contacts, Mail-Enabled | | |
| | | Users, Distribution Groups, | | |
| | c) | IMAP, POP,SMTP | 02 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------|--------|-------------------------|
| 1. | Configuring Microsoft Exchange Server 2010 Pro | | (Microsoft Publication) |

Unit- IV

| 4. | Config | uring Transport Servers | Lecturers Required | Ref. No. |
|----|--------|--------------------------------------------------------------------------------|-----------------------|----------|
| | a) | Hub Transport Servers, Accepted Domains | 04 | 1 |
| | b) | Remote Domains, Email Address Policies | 03 | 1 |
| | c) | Edge Transport Servers, Edge Transport Role, EdgeSync, Clone Edge Transport | 01 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------|--------|-------------------------|
| 1. | Configuring Microsoft Exchange Server 2010 Pro | | (Microsoft Publication) |

Unit V

| V | Monite | oring Exchange Server 2010. | Lecturer s | Ref. No. |
|---|--------|------------------------------------------------------------------------|---------------|----------|
| | a) | Monitoring DAGs, Monitoring Mail Flow, Configuring Message Tracking | 04 | 1 |
| | b) | Monitoring Transport Queues, Debugging Network Connectivity. | 03 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------|--------|-------------------------|
| 1. | Configuring Microsoft Exchange Server 2010 Pro | | (Microsoft Publication) |

Unit VI

| 6. | Loggin | ng and Reports. | Lecturer s | Ref. No. |
|----|--------|-----------------------------------------------------------------------------------------------------|---------------|----------|
| | a) | Generating Mailbox Statistics Reports, Reporting Mailbox Folder Statistics, Testing Mail Flow | 04 | 1 |
| | b) | Managing Connectivity Logging, Managing Protocol Logging, Managing Agent Logging, | 03 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------|--------|-------------------------|
| 1. | Configuring Microsoft Exchange Server 2010 Pro | | (Microsoft Publication) |

| Name of Course | B.Sc. NT TY |
|-----------------|---------------------------------|
| Semester | VI Semester |
| Name of Subject | Windows Server 2012 ADC Part II |
| Subject Code | \$6.CC.3 |

Prerequisites: Knowledge of Basic Networking, client, server & Hardware components.

Course Objectives:

- Configure and Troubleshoot Domain Name System
- Maintain Active Directory Domain Services
- Manage User and Service Accounts
- Implement Group Policy Infrastructure
- Manage User Desktops using Group Policy
- Configure and Troubleshoot Remote Access
- Install, Configure and Troubleshoot Network Policy Server
- Implement Network Access Protection
- Optimize File Services
- Configure Encryption and Advanced Auditing
- Deploy and Maintain Server Images
- Implement Update Managements
- Monitor Windows Server 2012

Course Outcomes:

- Client and Server architecture that provide request and response
- It will help to establish End to End communication between devices

Sailent Features:

- New Server Manager: Create, Manage Server Groups
- Better Edition, SKU Selection
- A Command-Line First, GUI-Second Mentality
- Hyper-V Replication
- Expanded PowerShell Capabilities

| | Unit – I | | | | | |
|----|-----------------------|--------------------------------------|-----------------------|----------|--|--|
| 1. | 1. Monitoring Servers | | Lecturers Required | Ref. No. | | |
| | 1.1 | Introducing the Microsoft Management | | | | |
| | | Console (MMC) | | | | |
| | 1.2 | Using Event Viewer | | | | |
| | 1.3 | Using Reliability Monitor | | | | |
| | 1.4 | Managing Performance | | | | |
| | 1.5 | Monitoring the Network | | | | |

| Sr. | Name of the Book | Author | Publication |
|-----|--------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------|
| No. | | | |
| 1. | Administering Windows Server 2012 | Patrick Regan | (Microsoft Official academic course) ISBN - 13: 978 – 1118882832 ISBN – 10 : 1118882830 Edition: I |

Unit – II

| 2. | Co | nfiguring File Services and Disk Encryption | Lecturers Required | Ref. No. |
|----|-----|------------------------------------------------------------------------|-----------------------|----------|
| | 2.1 | Securing Files | | |
| | 2.2 | Encrypting Files with EFS | | |
| | 2.3 | Managing EFS Certificates Encrypting Files with BitLocker | | |
| | 2.4 | Managing BitLocker Certificates Configuring the Network Unlock Feature | | |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|--------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------|
| 1. | Administering Windows Server 2012 | Patrick Regan | (Microsoft Official academic course) ISBN - 13: 978 – 1118882832 ISBN – 10 : 1118882830 Edition: I |

Unit- III

| 3. | | Configuring DNS Zones | Lecturer s | Ref. No. |
|----|-----|----------------------------------------------------------------------------------------|---------------|----------|
| | 3.1 | Understanding DNS | | |
| | 3.2 | Configuring and Managing DNS Zones | | |
| | 3.3 | Using the DNSCMD Command to Manage Zones | | |
| | 3.4 | Configuring DNS Record Types Using the DNSCMD Command to Manage Resource Records | | |
| | 3.5 | Troubleshooting DNS Problems | | |

References:

| Sr. | Name of the Book | Author | Publication |
|-----|--------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------|
| No. | | | |
| 1. | Administering Windows Server 2012 | Patrick Regan | (Microsoft Official academic course) ISBN - 13: 978 – 1118882832 ISBN – 10 : 1118882830 Edition: I |

Unit- IV

| 4. | | Configuring a Network Policy | Lecturers Required | Ref. No. |
|----|---------------------------------------------------------|---------------------------------------------------------------|-----------------------|----------|
| | 4.1 | Server Configuring a Network Policy Server Infrastructure, | | |
| | 4.2 Installing and Configuring Network Policy Server | | | |
| | 4.3 | Managing NPS Policies | | |

| 4.4 | Configuring Connection Request Policies Configuring Network Policies | |
|-----|-------------------------------------------------------------------------|--|
| 4.5 | Managing NPS Templates | |

| Sr. No. | Name of the Book | Author | Publication |
|------------|--------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------|
| 1. | Administering Windows Server 2012 | Patrick Regan | (Microsoft Official academic course) ISBN - 13: 978 – 1118882832 ISBN – 10 : 1118882830 Edition: I |

Unit V

| V | V Configuring Server Authentication | | Lecturers Required | Ref. No. |
|---|-------------------------------------|------------------------------------|-----------------------|----------|
| | 5.1 | Configuring Server Authentication | | |
| | 5.2 | Managing Service Accounts | | |
| | 5.3 | Understanding Domain Controllers | | |
| | 5.4 | Installing and Configuring an RODC | | |
| | 5.5 | Cloning a Domain Controller | | |

References:

| Sr. | Name of the Book | Author | Publication |
|------|------------------------------|---------------|------------------------------|
| INO. | | | |
| 1. | Administering Windows Server | Patrick Regan | (Microsoft Official academic |
| | 2012 | | course) ISBN - 13: 978 – |
| | | | 1118882832 ISBN - 10 : |
| | | | 1118882830 Edition: I |

Unit VI

| 6. | | Maintaining Active Directory | Lecturer s | Ref. No. |
|----|-----|--------------------------------------------------------------------------------------|---------------|----------|
| | 6.1 | Automating User Account Management | | |
| | 6.2 | Backing Up and Restoring Active Directory Optimizing an Active Directory Database | | |
| | 6.3 | Cleaning Up Metadata | | |

| Sr. No. | Name of the Book | Author | Publication |
|------------|--------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------|
| 1. | Administering Windows Server 2012 | Patrick Regan | (Microsoft Official academic course) ISBN - 13: 978 – 1118882832 ISBN – 10 : 1118882830 Edition: I |

| Name of Course | B.Sc. NT TY |
|-----------------|-------------|
| Semester | VI Semester |
| Name of Subject | Windows 7 |
| Subject Code | \$6.CC.4 |

Prerequisites:

• Knowledge of operating system.

Course Objectives:

- Configure and manage the Windows 7 desktop
- Windows 7 remote capabilities and utilities
- How to use Windows Firewall with advanced features and network profiles
- Evolution of the Windows Desktop Operating System
- Configure and use the User account control in various network profiles

Course Outcomes:

• Monitor and troubleshoot Windows 7 computers for problems with the operating system, hardware, network security, and applications.

Silent Features:

- Best practice to Configure Bit-locker.
- You can configure application software policy.
- Provide security of windows 7

Unit – I

| 1. | 1. Install, Migrate, or Upgrade to Windows | | Lecturer s | Ref. No. |
|----|--------------------------------------------|----------------------------------------------------------|---------------|----------|
| | a) | Introduction, Feature of windows 7, Edition of windows 7 | 02 | 1 |
| | b) | Installing Windows 7 | 03 | 1 |
| | c) | Upgrading to Windows 7 | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------------------------------------|--------|-------------------------|
| 1. | MCTS 70-680 Configuring- Windows-7 Training | | (Microsoft Publication) |

Unit – II

| 2. | Manag Networ | ing Devices, Disks, Applications, and k Settings. | Lecturer s Required | Ref. No. |
|----|-----------------|--------------------------------------------------------------|---------------------------|-------------|
| | a) | Managing Device Drivers and Devices, Managing Disks | 03 | 1 |
| | b) | Application Compatibility, Managing App-Locker and Software, | 03 | 1 |
| | c) | Configuring IPv4, Configuring IPv6, Network Configuration | 02 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------------------------------------|--------|-------------------------|
| 1. | MCTS 70-680 Configuring- Windows-7 Training | | (Microsoft Publication) |

Unit- III

| 3. | Windo | ows Firewall, Remote Management | Lecturer s | Ref. No. |
|----|-------|-----------------------------------------|---------------|----------|
| | a) | Managing Windows Firewall, Windows 7 | 04 | 1 |
| | | Remote Management, Sharing Resources | | |
| | b) | Folder and File Access, Managing Branch | 03 | 1 |
| | | Cache, Managing User Account Control | | |
| | c) | Windows 7 Authentication and | 02 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------------------------------------|--------|-------------------------|
| 1. | MCTS 70-680 Configuring- Windows-7 Training | | (Microsoft Publication) |

Unit- IV

| 4. | Direct A Mobilit | Access VPN Connections, BitLocker and y Options | Lecturers Required | Ref. No. |
|----|---------------------|-------------------------------------------------------|-----------------------|----------|
| | a) | Managing DirectAccess, Remote | 04 | 1 |
| | b) | Managing BitLocker, Windows 7 Mobility | 03 | 1 |
| | c) | Updating Windows 7, Configuring Internet Explorer. | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------------------------------------|--------|-------------------------|
| 1. | MCTS 70-680 Configuring- Windows-7 Training | | (Microsoft Publication) |

Unit V

| V | Monite Backup | oring and Performance, Recovery and | Lecturer s Boquiro | Ref. No. |
|---|------------------|---------------------------------------------------------|--------------------------|----------|
| | a) | Monitoring Systems, Configuring Performance Settings | 04 | 1 |
| | b) | Backup, System Recover, Recovering Files and Folders. | 03 | 1 |

| Sr. | Name of the Book | Author | Publication | | | |
|-----|--------------------------|--------|-------------------------|--|--|--|
| No. | | | | | | |
| 1. | MCTS 70-680 Configuring- | | (Microsoft Publication) | | | |
| | Windows-7 Training | | | | | |

Unit VI

| 6. | Config | uring and Deploying System Images. | Lecturer s | Ref. No. |
|----|--------|-----------------------------------------------------------------|---------------|----------|
| | a) | Capturing System Images, Managing Virtual Hard Disk Files, | 04 | 1 |
| | b) | Managing a System Image Before Deployment, Deploying Images. | 03 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------------------------------------|--------|-------------------------|
| 1. | MCTS 70-680 Configuring- Windows-7 Training | | (Microsoft Publication) |

| Name of Course | B.Sc. NT TY |
|-----------------|------------------------------------|
| Semester | VISemester |
| Name of Subject | CCNA Security |
| Subject Code | S6.CC.5 (Core Course Elective – I) |

Prerequisites:

• Knowledge of network layers 1-3 that are applicable to core routing and switching and introduces advanced technologies.

Course Objectives:

- Production N/W Device & Port Security against Malicious attacks
- IP address to Design a & Configure small & medium size N/W
- Understand the working of VPN Tunnels use in Industry
- Firewall, Proxy Server use in Industry
- Understand N/W protocols like IS-IS, RIPng & BGP according to industry requirement
- Describe WAN technology concepts.
- Describe the various troubleshooting methodologies and troubleshooting tools

Course Outcomes:

- Practical hands-on will help to interconnect the N/W components & design industrial N/w
- Best practice to Configure BGP Protocol.
- Best practice to Configure port security, IPsec, VPN.

Silent Features:

• Student will be able to manage Network for an Organization

Unit – I

| 1. | | INTERGRATED IS-IS | Lecturer s | Ref. No. |
|----|----|--------------------------------|---------------|----------|
| | a) | IS-IS Basic | 02 | 1 |
| | b) | IS-IS metric | 01 | 1 |
| | c) | IS-IS PDU, LSP & SNP | 03 | 1 |
| | d) | IS-IS Addressing configuration | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------|--------------|-------------|
| 1. | Cisco CCENT CCNA icnd1 100-101 | Wendell odam | |

Unit – II

| 2. | BGP F | Protocol | Lecturer s Required | Ref. No. |
|----|-------|-----------------------------|---------------------------|-------------|
| | a) | Introduction to BGP | 02 | 1 |
| | b) | BGP FSM, eBGP neighbor ship | 03 | 1 |
| | c) | BGP protocol configuration | 02 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------|--------------|-------------|
| 1. | Cisco CCENT CCNA icnd1 100-101 | Wendell odam | |

Unit- III

| 3. | IPv6 | | Lecturer s | Ref. No. |
|----|------|-----------------------------------------|---------------|----------|
| | a) | Advantages of IPv6, Dhcp &NDP | 04 | 1 |
| | b) | Types of ipv6 address and some protocol | 03 | 1 |
| | c) | RIPng the ipv6, EIGRP for Ipv6, BGP4 | 01 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------|--------------|-------------|
| 1. | Cisco CCENT CCNA icnd1 100-101 | Wendell odam | |

Unit- IV

| 4. | Brancl | h design and WAN | Lecturers Required | Ref. No. |
|----|--------|------------------------------------------|-----------------------|----------|
| | a) | Basic terminology, Connection with IPsec | 03 | 1, 2 |
| | b) | Connection with DSL | 03 | 1, 2 |
| | c) | Connection with VPN | 02 | 1, 2 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------|--------------|-------------|
| 1. | Cisco CCENT CCNA icnd1 100-101 | Wendell odam | |

Unit V

| 5. | Multicast | | Lecturers Required | Ref. No. |
|----|-----------|----------------------------------------------------------------|-----------------------|----------|
| | a) | Multicast Mac & IP address Multicast solution, version of IGMP | 04 | 1, 2 |
| | b) | Implementing multicast, Multicast routing protocol. | 03 | 1, 2 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------|--------------|-------------|
| 1. | Cisco CCENT CCNA icnd1 100-101 | Wendell odam | |

Unit VI

| 6. | Securi | ty | Lecturer s | Ref. No. |
|----|--------|------------------------------------------------------|---------------|----------|
| | a) | Port security, DHCP snooping, Dynamic ARP inspection | 04 | 1, 2 |
| | b) | VLAN hopping.802.1x and AAA & Switch ACL. | 03 | 1, 2 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------|--------------|-------------|
| 1. | Cisco CCENT CCNA icnd1 100-101 | Wendell odam | |

| Name of Course | B.Sc. NT TY |
|-----------------|-------------------------------------|
| Semester | VISemester |
| Name of Subject | Windows Share Point 2010 |
| Subject Code | S6.CC.5 (Core Course Elective – II) |

Prerequisites:

• Students must have experience with: Windows XP, Vista, or Windows 7 Office 2003, 2007, or 2010 Internet Explorer 7 or 8

Course Objectives:

- SharePoint 2010 Site Collection and Site Administrator Roles
- SharePoint 2010 Environment
- Governance and Best Practices
- Overview of SharePoint 2010 Hierarchy
- Creating a Library in SharePoint 2010

Course Outcomes:

- Understand the role of the SharePoint 2010 Site Collection and Site Administrator.
- Understand SharePoint 2010 Terminology and the Environment.
- Understand Governance and Best Practices within SharePoint 2010
- Understand the different types of SharePoint 2010 sites available.
- Understand the differences between the different lists and libraries.

Silent Features:

- Know how to create SharePoint 2010 sites.
- Understand how site structure can help within SharePoint 2010.

| 1. | Nev | v in Microsoft SharePoint 2010 | Lecturer s | Ref. No. |
|----|-----|---------------------------------------------------------|---------------|----------|
| | a) | New Requirements Overview | 02 | 1 |
| | b) | Requirements by Environment | 03 | 1 |
| | c) | What's new and Different with SharePoint Server 2010 | 01 | 1 |

UNIT – I

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------------------|-------------|----------------------|
| 1. | MCTS Microsoft SharePoint2010 Configuration Study Guide | James Pyles | Wiley Publishing Inc |

UNIT – II

| 2. | Plannin | g and Deploying a SharePoint 2010 | Lecturer s Poquired | Ref. No. |
|----|---------|----------------------------------------------------|---------------------------|-------------|
| | a) | Planning the SharePoint Server 2010 Environment | 03 | 1 |
| | b) | SharePoint Server 2010: Deploying | 03 | 1 |

| c) | Deploying SharePoint Server 2010 | 02 | 1 |
|----|----------------------------------|----|---|
| | | | |

| Sr. No | Name of the Book | Author | Publication | | | |
|-----------|------------------|-------------|----------------------|--|--|--|
| 1. | MCTS Microsoft | James Pyles | Wiley Publishing Inc | | | |
| | Study Guide | | | | | |

UNIT- III

| 3. | Configu | uring SharePoint Farm Environments | Lecturer s | Ref. No. |
|----|---------|---------------------------------------------------|---------------|----------|
| | a) | Server Farm Configuration Overview | 04 | 1 |
| | b) | Usage and Health Data Collection Configuration | 03 | 1 |
| | c) | Configuring Email Integration | 2 | 1 |
| | d) | Configuring Mobile Accounts for SharePoint | 2 | 1 |
| | e) | Diagnostic Logging Configuration | 02 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|---------------------------------------------------------------|-------------|----------------------|
| 1. | MCTS Microsoft SharePoint2010 Configuration Study Guide | James Pyles | Wiley Publishing Inc |

Unit- IV

| 4. | Configu | uring Service Applications | Lecturers Required | Ref. No. |
|----|---------|---------------------------------------------|-----------------------|----------|
| | a) | Service Applications Configuration Overview | 04 | 1 |
| | b) | Server Farm Configuration Wizard | 03 | 1 |
| | c) | Service Applications and Services | 01 | 1 |
| | d) | Managing Service Applications | 1 | 1 |

| Sr. | Name of the Book | Author | Publication |
|-----|------------------------------|-------------|----------------------|
| No. | | | |
| 1. | MCTS Microsoft | James Pyles | Wiley Publishing Inc |
| | SharePoint2010 Configuration | | |
| | Study Guide | | |

Unit V

| V | Managi | ing User Accounts and Roles | Lecturer s Poquiro | Ref. No. |
|---|--------|-------------------------------------------------------|--------------------------|----------|
| | a) | Managing the User Profile Service | 04 | 1 |
| | b) | Administering the User Profile Service Application | 03 | 1 |
| | c) | User and Organization Profile Management | 02 | 1 |

References:

| Sr. | Name of the Book | Author | Publication | | | |
|-----|------------------------------|-------------|----------------------|--|--|--|
| No. | | | | | | |
| 1. | MCTS Microsoft | James Pyles | Wiley Publishing Inc | | | |
| | SharePoint2010 Configuration | | | | | |
| | Study Guide | | | | | |

Unit VI

| 6. | Managi | ing Site Collections | Lecturer s | Ref. No. |
|----|--------|------------------------------------------------------------------------------------|---------------|----------|
| | a) | Site Collections Administration 1. Managing Site Collection Quotas and Locks | 04 | 1 |
| | b) | Web Content Management 1. Managing File Types 2. Managing Web Content | 03 | 1 |

| Sr. | Name of the Book | Author | Publication |
|-----|---------------------------------------------------------------|-------------|----------------------|
| No. | | | |
| 1. | MCTS Microsoft SharePoint2010 Configuration Study Guide | James Pyles | Wiley Publishing Inc |

| Name of Course | B.Sc. NT TY |
|-----------------|--------------------------------------|
| Semester | VISemester |
| Name of Subject | Adhoc and Sensor Networks |
| Subject Code | S6.CC.5 (Core Course Elective – III) |

Prerequisites: Knowledge of Digital Communication.

Course Objectives:

- Comprehensive knowledge of various techniques in mobile networks/Ad-hoc networks and sensor based networks
- Understanding of Infrastructure less networks and their importance in the future directions for wireless communications.

Course Outcomes:

- Describe the unique issues in ad-hoc sensor networks.
- Describe current technology trends for the implementation and deployment of wireless adhoc/sensor networks.
- Discuss the challenges in designing MAC, routing and transport protocols for wireless adhoc/sensor networks.
- Discuss the challenges in designing routing and transport protocols for wireless Adhoc/sensor networks.

Silent Features:

- Comprehend the various sensor network Platforms, tools and applications.
- Knowledge to analyze ad-hoc & sensor based networks and compute various parameters associated with it.

| 1. | | Ad Hoc Wireless Networks | Lecturer s Poquired | Ref. No. |
|----|----|-----------------------------------------|---------------------------|----------|
| | a) | Introduction. Issues in Ad Hoc Wireless | 02 | 1 |
| | b) | Ad Hoc Wireless Internet | 01 | 1 |
| | c) | MAC Protocols for Ad Hoc Wireless | 02 | 1 |
| | d) | Design Goals of a MAC Protocol | 01 | 1 |
| | e) | Classifications of MAC Protocols | 01 | 1 |

UNIT – I

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|----------------------------------------|-------------------------------------------|-------------|
| 1. | Adhoc and Sensor Networks- Theory & | Carlos De Morais Cordeiro and Dharam P | |
| | Applications | Agrawal, | |

UNIT – II

| 2 | Ro | uting Protocols for Ad Hoc Wireless | Lecture Required | Ref.No |
|---|----|---------------------------------------------------------------------|------------------|--------|
| | a) | Introduction to Routing algorithm | 02 | 1 |
| | b) | Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks | 01 | 1 |
| | c) | Classifications of Routing Protocols | 02 | 1 |

| d) | Hybrid Routing Protocols | 01 | 1 |
|----|--------------------------------|----|---|
| e) | Hierarchical Routing Protocols | 02 | 1 |

| Sr. | Name of the Book | Author | Publication |
|-----|--------------------------------------------------------|----------------------------------------------------|-------------|
| No. | | | |
| 1. | Adhoc and Sensor Networks- Theory & Applications | Carlos De Morais Cordeiro and Dharam P Agrawal, | |

| 3. | Tra | nsport Layer and Security Protocols | Lecturer s | Ref. No. |
|----|-----|----------------------------------------------------------------------------|---------------|----------|
| | a) | Transport Layer Protocol for Ad Hoc Wireless Networks | 04 | 1 |
| | b) | Design Goals of a Transport Layer Protocol for Ad Hoc Wireless Networks | 03 | 1 |
| | c) | Classification of Transport Layer | 02 | 1 |
| | d) | TCP Over Ad Hoc Wireless Networks | 02 | 1 |

UNIT- III

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------|-----------------|-------------|
| 1. | Mobile Communications | Schiller Jochen | |

UNIT- IV

| 4. | | Wireless Sensor Networks | Lecturers Required | Ref. No. |
|----|----|----------------------------------------------------------------|-----------------------|----------|
| | a) | Sensor Network Architecture | 03 | 1 |
| | b) | Data Dissemination. Data Gathering | 02 | 1 |
| | c) | MAC Protocols for Sensor Networks | 01 | 1 |
| | d) | Quality of a Sensor Network. Evolving Standards. Other Issues. | 02 | 1 |

References:

| Sr. No. | Name of the Book | Author | Publication |
|------------|-----------------------------------|---------|-------------|
| 1. | Wireless Communication Systems | Wang X. | |

UNIT V

| 5. | Hybrid | wireless Networks: | Lecturer s Require | Ref. No. |
|----|--------|--------------------------------------------------|--------------------------|----------|
| | a) | Next-Generation Hybrid Wireless Architectures | 02 | 1 |
| | b) | Routing in Hybrid Wireless Networks | 01 | 1 |
| | c) | Pricing in Multi-Hop Wireless Networks | 02 | 1 |

| d) | Power Control Schemes in Hybrid Wireless Networks | 01 | 1 |
|----|------------------------------------------------------|----|---|
| e) | Load Balancing in Hybrid Wireless | 01 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|------------------------------------|-----------------------------------------------|-------------|
| 1. | Principles of Wireless Networks | Pahlavan, Kaveh., Krishnamoorthy, Prashant | |

UNIT VI

| 6. | Wirele | ss Geo-location Systems | Lecturer s | Ref. No. |
|----|--------|----------------------------------------|---------------|----------|
| | a) | What is wireless Geo-location | 01 | 1 |
| | b) | Wireless Geolocation System | 03 | 1 |
| | c) | Technologies for Wireless Geo-location | 02 | 1 |
| | d) | Geo-location Standards for E-911 | 02 | 1 |

| Sr. No. | Name of the Book | Author | Publication |
|------------|-------------------------------------------------------------|-----------|-------------|
| 1. | Ad hoc Mobile Wireless Networks Protocols and Systems | Toh, C. K | |

| Name of Course | B.Sc. NT TY |
|-----------------|----------------------|
| Semester | VI Semester |
| Name of Subject | Exchange Server 2010 |
| Subject Code | S6.Lab.1 |

Prerequisites:

- Fundamental knowledge of network technologies including Domain Name System (DNS) and firewall technologies.
- Experience with the Microsoft Windows Server 2003 and Microsoft Windows Server 2008 operating systems, though experience with previous versions of Exchange Server is not required

Course Objectives:

- Install and deploy Exchange Server 2010
- Configure the Client Access server role in Exchange Server 2010
- Manage message transport in Exchange Server 2010
- Configure the secure flow of messages between the Exchange Server organization and the Internet
- Transition an Exchange Server 2003 or Exchange Server 2007 organization to Exchange Server 2010

Course Outcomes:

- Deploying Exchange Server 2010
- Best practice to Configure Mailbox server roles
- Best practice to Manage mailboxes in Exchange Server 2010
- Best practice to Configure the Client Access server role

Silent Features:

- You can configure email server in our organization.
- Those aspiring to be enterprise-level messaging administrators.
- IT generalists and help desk professionals who want to learn about Microsoft Exchange Server 2010

| Sr.No | Title of program | Require Hours |
|-------|----------------------------------------|------------------|
| 1 | Installing Exchange Server 2010 | 2 |
| 2 | Create Public Folder Database | 2 |
| 3 | Create Address List | 2 |
| 4 | Create mailbox database | 2 |
| 5 | Create & configure hub transport role | 2 |
| 6 | Create & configure edge transport role | 2 |
| 7 | Create email address policy | 2 |
| 8 | Create & configure accepted domain | 2 |
| 9 | Create & configure remote domain | 2 |
| 10 | Troubleshooting | 2 |

| Sr.No | Book | Author | Publication |
|-------|-----------------------------------------------------------------|--------|----------------------------|
| 1 | Configuring Microsoft Exchange Server 2010 Pro Certification | | (Microsoft Publication) |
| | | | |

| Name of Course | B.Sc. NT TY |
|-----------------|----------------------------------|
| Semester | VI Semester |
| Name of Subject | Windws Server 2012 ADC Part – II |
| Subject Code | S6.Lab.2 |

Prerequisites: Knowledge of Basic Networking, client, server & Hardware components.

Course Objectives:

- Configure and Troubleshoot Domain Name System
- Maintain Active Directory Domain Services
- Manage User and Service Accounts
- Implement Group Policy Infrastructure
- Manage User Desktops using Group Policy
- Configure and Troubleshoot Remote Access
- Install, Configure and Troubleshoot Network Policy Server
- Implement Network Access Protection
- Optimize File Services
- Configure Encryption and Advanced Auditing
- Deploy and Maintain Server Images
- Implement Update Managements
- Monitor Windows Server 2012

Course Outcomes:

- Client and Server architecture that provide request and response
- It will help to establish End to End communication between devices

Sailent Features:

- New Server Manager: Create, Manage Server Groups
- Better Edition, SKU Selection
- A Command-Line First, GUI-Second Mentality
- Hyper-V Replication
- Expanded PowerShell Capabilities

Practical List:

- 1) Creating MMC
- 2) Managing Event viewer
- 3) Managing Bitlocker
- 4) Manaing DNS zones
- 5) Troubleshooting DNS Problems
- 6) Managing Network policy
- 7) Mangiing DC
- 8) Creating RODC
- 9) Cloning DC
- 10) Backup Active Directory
- 11) Restore Active Directory

| Name of Course | B.Sc. NT TY |
|-----------------|-------------|
| Semester | VI Semester |
| Name of Subject | Windows 7 |
| Subject Code | S6.Lab.3 |

Prerequisites:

• Knowledge of operating system.

Course Objectives:

- Configure and manage the Windows 7 desktop
- Windows 7 remote capabilities and utilities
- How to use Windows Firewall with advanced features and network profiles
- Evolution of the Windows Desktop Operating System
- Configure and use the User account control in various network profiles

Course Outcomes:

• Monitor and troubleshoot Windows 7 computers for problems with the operating system, hardware, network security, and applications.

Silent Features:

- Best practice to Configure Bit-locker.
- You can configure application software policy.
- Provide security of windows 7

| Sr.No | Title of program | Require |
|-------|----------------------------------------------|---------|
| | | Hours |
| 1 | Installing Windows 7 | 2 |
| 2 | Managing Disk & Drivers | 2 |
| 3 | Lab Configuration- Managing Disks | 2 |
| 4 | Lab Configuration Application Compatibility, | 2 |
| 5 | Lab Configuration App-Locker | 2 |
| 6 | Lab Configuration Software Res. policy | 2 |
| 7 | Lab Configuration remote desktop | 2 |
| 8 | Lab Configuration windows firewall | 2 |
| 9 | Lab Configuration sharing folder | 2 |
| 10 | Lab Configuration bit locker | 2 |

| Sr.No | Book | Author | Publication |
|-------|--------------------------------------------|--------|----------------------------|
| 1 | MCTS 70-680 Configuring-Windows-7 Training | | (Microsoft Publication) |

| Name of Course | B.Sc. NT TY |
|-----------------|-------------|
| Semester | VI Semester |
| Name of Subject | SQL Server |
| Subject Code | S6.SEC1 (1) |

Prerequisites:

• Basic knowledge of operating system & DBMS.

Course Objectives:

- \circ To understand what is MySQL & its uses.
- To understand basic SQL queries.
- To understand different numerical, string & date handling function.
- Implementation and representation of different type relations in table.
- To understand back and restore procedure.
- To understand repairing database.

Course Outcomes:

- Detailed understanding of MySQL database.
- Knowledge of writing SQL queries.
- \circ Knowledge of maintaining relation between table and database normalization.
- \circ $\;$ Understanding different numerical, string handling and date handling function.

Salient Features:

- Able to use concept database normalization.
- Abe to use maintaining relationship between tables and joining table.
- 1 Relational Database Systems
- 2 Planning the Installation and Installing SQL Server
- 3 SQL Server Management Studio
- **4 SQL Components**
- 5 Data Definition Language

6 Queries

- 7 Modification of a Table's Contents
- 8 Stored Procedures and User-Defined Functions
- 9 System Catalog
- 10 Indices
- 11 Views
- 12 Security System of Database Engine
- 13 Concurrency Control
- 14 Triggers

| | B.Sc. NT TY |
|-----------------|------------------|
| Semester | VI Semester |
| Name of Subject | Macromedia Flash |
| Subject Code | S6.SEC1 (2) |

- 1. Getting Started
 - a. Introduction and Features of Macromedia Flash
 - b. Creating Graphics in Flash
 - c. Flash Animation
 - d. Symbols, instance, and the Library
 - e. Working with Sound and Video
- 2. ActionScript
 - a. Introduction to ActionScript
 - b. String, Numbers and Variables
 - c. Arrays
 - d. Statements and Expressions
 - e. Functions
 - f. The Movie Clip Object
 - g. Events

Practical's List:

- 1. Creating Graphic in Flash
- 2. Creating Simple Animation
- 3. Working with Symbols and instances
- 4. Creating and Using Library
- 5. Creating animation with simple ActionScript
- 6. Working with String, Numbers and Variables
- 7. Working With Arrays
- 8. Creating animation using functions
- 9. Creating Simple Movies
- 10. Using Events in Flash Animations
- 11. Use 3 Key frames to create a color change effect
- 12. Use an Input Text and a Dynamic Text field to create a simple interaction
- 13. Use the above file and add a button to create a simple interaction
- 14. Use drawing tools and 4 key frames to create a simple animation.
- 15. Draw a rectangle and then use Motion Tween and Rotation to create an effect
- 16. Use a moving background and change the publish setting to create an

| Name of Course | B.Sc. NT TY |
|-----------------|---------------------|
| Semester | VI Semester |
| Name of Subject | Android Programming |
| Subject Code | S6.SEC1 (3) |

UNIT I: Introduction

Installing Eclipse, Installing Android Development Tools for Eclipse, Installing Android Studio

UNIT II: Android Architecture

Android applications structure, creating a project, working with the AndroidManifest.xml, Activities

UNIT III: UI Architecture

Application context, Intents, Activity life cycle

UNIT IV: User Interface Widgets

Text controls, Button controls, Toggle buttons, Images, Notification and Toast

UNIT V: Menus, Dialogs and Animation

Options menu, Context menu, Dialogs, Animation

UNIT VI: Working with data storage and Publishing Apps

Shared preferences, Files access, SQLite database, publishing Apps

References:

1. Professional Android 4 Application Development, Edition 3, Reto Meier, Wrox John Wiley & Sons, 2012, ISBN 1118237226, 9781118237229.

2. Beginning Android 4 Application Development, Edition illustrated, Wei-Meng Lee, John Wiley & Sons, 2012, ISBN 1118240677, 9781118240670.

3. Sams Teach Yourself Android Application Development in 24 Hours, Edition illustrated, Lauren Darcey & Shane Conder, Sams Publishing, 2012, ISBN 0672335697, 9780672335693

- 4. <u>https://developer.android.com/</u>
- 5. <u>https://www.tutorialspoint.com/android/</u>
- 6. <u>https://developer.android.com/guide/</u>

Practical List:

- 1. Installing Eclipse and Android Studio
- 2. Study of Android Application structure.
- 3. Sample Apps for Working with AndroidManifest.xml
- 4. Sample Apps for Working with Activities.
- 5. Sample Apps for Working with Application Context
- 6. Apps for Demonstration of Intends
- 7. Apps for Demonstration of Activity Life Cycle.
- 8. Apps for demonstration of Buttons and Textbox.
- 9. Designing simple Calculator Apps

- 10. Sample Apps for Working with Images.
- 11. Sample Apps for Working with Notification and Toast.
- 12. Sample Apps for Demonstration of Context menu and Dialogs
- 13. Sample Apps for Working with SQLite Database.
- 14. Sample Apps for Demonstration of File Access.
- 15. Sample Apps for Demonstration