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

Semester	Subject Code	Course Name	Credit		Total Credits
			Internal	External	
Semester – V	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. CCENT 2. Cloud Computing 3. VM ware	1	3	**4**
	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) 1. Java script 2. MySQL 3. Accounting with Tally		2	**2**
		Environmental Studies			
		TOTAL			**28**
Semester – VI	S6.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. CCNA Security 2. Windows Share Point 2010 3. Adhoc & Sensor Network	1	3	**4**
	S6.Lab 1	Exchange Server – 2010		2	**2**
	S6.Lab 2	ADC 2012 Part – II		2	**2**
	S6.Lab 3	Windows 7		2	**2**
	S6.SEC.1	Skill Enhancement Course (SEC) 1. SQL Server 2. Macromedia Flash 3. Android Programming		2	**2**
		TOTAL			**28**

Name of Course	B.Sc. NT TY
Semester	V Semester
Name of Subject	Distributed Systems
Subject Code	S5.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.	Introduction		Lecturers	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		Lecturers	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

References:

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

Unit – III

3	Processes		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.	Naming		Lecturers	Ref. No.
	a)	Names, Identifiers, and Addresses	02	1
	b)	Flat Naming	02	1

			Lecturers	Ref. No.
	c)	Structured Naming, Attribute-Based Naming	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 – VI

5.		Synchronization	Lecturers	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

References:

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

Name of Course	B.Sc. NT TY
Semester	V Semester
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.

UNIT-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

References:

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	Lectures Required	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. 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-III

Sr. No.		Managing servers in Linux	Lectures Required	Ref. 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

References:

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-IV

Sr. No.		Handling Electronic Mail	Lectures Required	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

References:

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. 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-VI

Sr. No.		Multimedia Applications	Lectures Required	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

References:

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	

Name of Course	B.Sc. NT TY
Semester	V Semester
Name of Subject	Windows Server 2012 ADC Part I
Subject Code	S5.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

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

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-II

Sr. No.		Configuring server roles and features	Lectures Required	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. 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-III

Sr. No.		Configuring Hyper-V	Lectures Required	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. 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-IV

Sr. No.		Deploying and configuring core network services	Lectures Required	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

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-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. No.	Creating and managing Group Policy		Lectures Required	Ref. No
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

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)

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.	**Managing a Cisco Internetwork**		Lecturers	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 b. Checking Network Connectivity and Troubleshooting	02	1

References:

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

Unit – II

2.		Network Address Translation (NAT)	Lecturers	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		Internet 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 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

References:

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

Unit – V

5.	Security		Lecturers	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		Lecturers	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

References:

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.	Introduction		Lecturers	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.	TCP/IP		Lecturers	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

References:

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.	Network Media and Devices		Lecturers	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.	Ethernet Fundamentals		Lecturers	Ref. No.
	a)	Ethernet History	1	1
	b)	Ethernet Characteristics, Frame Types and Addressing	2	1
	c)	Ethernet Standards	1	1

References:

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

5.	**Switching: Moving Data Inside Your Network**		**Lecturers**	**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.	**Routing Essentials and IP Addressing**		**Lecturers**	**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

Reference:

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

References:

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

Unit – II

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

References:

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

Unit- III

3.	Software as a service and cloud computing		Lecturers	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. No.	Name of the Book	Author	Publication
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

References:

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

Unit V

5.	MapReduce and extensions			Lecturers Require	Ref. No.
	a)	Parallel computing The MapReduce mode Parallel efficiency of MapReduce		04	1, 2
	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 : Technology, Architecture, Application	Gautam Shroff	

Unit VI

6.	Dev 2.0 platforms			Lecturers	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

References:

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.	Introduction		Lecturers	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	VMware ESX and ESXi		Lecture Required	Ref.No
	a)	Introduce the architecture of ESX and ESXi	02	1
	b)	Manually configure ESX/ESXi	01	1

References:

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

Unit- III

3.	Networking		Lecturers	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.	Virtual 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		Lecturers Require	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

References:

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

Unit VI

6.	Data Protection		Lecturers	Ref. No.
	a)	Back up and recover virtual machines using VMware Data Recovery	02	1

References:

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

References:

Sr.No	Book	Author	Publication
1	CCNA	Todd Lammle	SYBEX

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. Addition 2. 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.

Reference:

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

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

Prerequisites:
- o Basic knowledge of operating system & DBMS.

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

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

Salient Features:
- o Able to use concept database normalization.
- o 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**	Lecturers Begins	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

References:

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

Unit – II

2.		Cryptography: Concepts and Techniques	Lecturers Required	Ref. 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.		Domain Name Disputes and Trademark Law	Lecturers	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.		The Cyber Crimes	Lecturers	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

References:

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

Unit V

5.	Introduction Of Ethical Hacking		Lecturers	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.	Study Of Firewall And Network Security Configuration		Lecturers 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

References:

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	S6.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.	**Installing Exchange Server 2010**		Lecturers	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

References:

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

Unit – II

2.	Exchange Databases and Address Lists		Lecturers	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 Books	02	1

References:

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

Unit- III

3.	Exchange Mailboxes		Lecturers	Ref. No.
	a)	Mailbox Configuration, Creating Mailboxes, Linked Mailboxes, Configuring Mailbox Properties, Moving Mailboxes, Disabling, Removing, and Reconnecting Mailboxes	04	1
	b)	Managing Recipients and Distribution Groups, Mail Contacts, Mail-Enabled Users, Distribution Groups,	03	1
	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.	Configuring 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 Server	01	1

References:

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

Unit V

V	Monitoring Exchange Server 2010.	Lecturers	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.	Logging and Reports.	Lecturers	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

References:

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	S6.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.	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		

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 – II

2.		Configuring 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	Lecturers	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. 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- 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		

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 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. 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 VI

6.	Maintaining Active Directory	Lecturers	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		

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

Name of Course	B.Sc. NT TY
Semester	VI Semester
Name of Subject	Windows 7
Subject Code	S6.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.	Install, Migrate, or Upgrade to Windows		Lecturers	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.	Managing Devices, Disks, Applications, and Network Settings.		Lecturers 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

References:

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

Unit- III

3.	Windows Firewall, Remote Management		Lecturers	Ref. No.
	a)	Managing Windows Firewall, Windows 7 Remote Management, Sharing Resources	04	1
	b)	Folder and File Access, Managing Branch Cache, Managing User Account Control	03	1
	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 Access VPN Connections, BitLocker and Mobility 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	Monitoring and Performance, Recovery and Backup		Lecturers Require	Ref. No.
	a)	Monitoring Systems, Configuring Performance Settings	04	1
	b)	Backup, System Recover, Recovering Files and Folders.	03	1

References:

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

Unit VI

6.	Configuring and Deploying System Images.		Lecturers	Ref. No.
	a) Capturing System Images, Managing Virtual Hard Disk Files,		04	1
	b) Managing a System Image Before Deployment, Deploying Images.		03	1

References:

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	VI Semester
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	Lecturers	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 Protocol		Lecturers Required	Ref. No.
	a)	Introduction to BGP	02	1
	b)	BGP FSM, eBGP neighbor ship	03	1
	c)	BGP protocol configuration	02	1

References:

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

Unit- III

3.	IPv6		Lecturers	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.	Branch 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

References:

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

Unit VI

6.	Security	Lecturers	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

References:

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	VI Semester
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.

UNIT – I

1.	**New in Microsoft SharePoint 2010**		Lecturers	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

References:

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

UNIT – II

2.	**Planning and Deploying a SharePoint 2010**		Lecturers Required	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

References:

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

UNIT- III

3.	Configuring SharePoint Farm Environments		Lecturers	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.	Configuring 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

References:

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

Unit V

V	Managing User Accounts and Roles		Lecturers Require	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. No.	Name of the Book	Author	Publication
1.	MCTS Microsoft SharePoint2010 Configuration Study Guide	James Pyles	Wiley Publishing Inc

Unit VI

6.	Managing Site Collections		Lecturers	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

References:

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

Name of Course	B.Sc. NT TY
Semester	VI Semester
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 ad-hoc/sensor networks.
- Discuss the challenges in designing MAC, routing and transport protocols for wireless ad-hoc/sensor networks.
- Discuss the challenges in designing routing and transport protocols for wireless Ad-hoc/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.

UNIT – I

1.		Ad Hoc Wireless Networks	Lecturers Required	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

References:

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

UNIT – II

2		Routing Protocols for Ad Hoc Wireless Networks:	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

References:

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

UNIT- III

3.		Transport Layer and Security Protocols	Lecturers	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 Solutions	02	1
	d)	TCP Over Ad Hoc Wireless Networks	02	1

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:		Lecturers 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 Networks	01	1

References:

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

UNIT VI

6.	**Wireless Geo-location Systems**		Lecturers	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

References:

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

References:

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

References:

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:
- o Basic knowledge of operating system & DBMS.

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

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

Salient Features:
- o Able to use concept database normalization.
- o 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. https://developer.android.com/
5. https://www.tutorialspoint.com/android/
6. https://developer.android.com/guide/

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