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SYLLABUS FOR THE TRADE  
OF

# DATA BASE SYSTEM ASSISTANT

(SEMESTER PATTERN)

Under  
CRAFTSMAN TRAINING SCHEME  
SECTOR – IT & ITES

Designed in : 2014

Government of India  
Ministry of Labour & Employment  
D.G.E. & T

### General Information

1. Name of the Trade : Database System Administration Assistant
2. N.C.O. Code No. :
3. Entry Qualification : Passed 12<sup>th</sup> Standard with Science & Maths
4. Duration of Course : One Year ( 2 semesters each of 6 months )
5. Power Norms : 3.45 KW
6. Space Norms : 70 sq.m.
7. Unit Size : 20
7. Instructor's Qualification : **(i) Technical - (i) Degree in Engineering (Computer Science or IT) or equivalent from Recognized university / MCA /MSc. Computer Science or IT or Three year Diploma in Engineering from recognized Board / Institution in Computer Science or IT or National Apprenticeship Certificate or National Trade certificate in Data Base System Assistant trade with National Craft Instructor Certificate if available**  
**(ii) Post Qualification Experience in relevant field – One year for Degree holder, Two years for Diploma holders and Three years for NAC / NTC holders after NAC/NTC.**

**Job Role** : The trainee will be working in industry/organization as Assistant to Database System Administrator

**Course Objective : After completion of the course the trainee able to**

- Install various software
- Create database
- Maintain database
- Create users and their functions in server
- Back up the database and archive database
- Create database in online and maintain

# Syllabus for DATA BASE SYSTEM ASSISTANT

Semester : I

Duration : 6 Months

Week No.	Practical	Theory
1	<p><u>Introduction to Computers</u>            Connecting of power supply to computer and its peripherals            Demonstration of various parts of computer system such as mother board, RAM, CPU, serial and parallel ports</p> <p>Microsoft WORD</p> <p>Open, resize and close MS WORD. Opening, edit and save/ "save as" documents.</p> <p>Use all menu bar features. Use all Standard tool bar features.</p> <p>Create Document, non-documents files. Create templates. Create tables. Insert pictures and videos.</p> <p>Mail merge documents. Creating Bookmarks.</p> <p>Add Bullets and numbering. Create Hyperlinks. Create brochures. Create book work</p>	<p><u>Introduction to Computers</u>            Basic Definition, hardware, software, Block Diagram of Computer system            I/O devices and its application            Switching and shutting down the computer, Features and functions of Operating systems, different types of operating systems.</p> <p>Microsoft WORD</p> <p>Text editing software's. Introduction to MS Office. Features and application of Microsoft word. Concept of word processing. Menu bar features. Standard tool bar features. Editing the text, use of different tools, formatting the text. Creating, Document, non-documents files. Creating templates. Creating tables.</p> <p>Inserting pictures and videos. Mail merge. Book marks            Bullets and numbering. Hyperlinks. Creating brochures. Creating bookwork.</p>
2-3	<p><u>MS Windows</u>            Using desktop, task bar, start button, title bar, menus and windows help.            My computer &amp; recycle bin.            Creating, deleting and renaming of files, folders &amp; short cuts. Opening &amp; closing of different windows. Using different windows at a time. Moving through</p>	<p>MS Windows            Different versions, advantages and application of windows. Starting windows and their operations.            File Management through Windows explorer. Introduction and applications of Accessories such as notepad, word pad, paint brush, calculators, calendar, character map, system</p>

	<p>windows and mouse, maximize/minimize windows, use of help feature, exit windows, starting an application and closing application.</p> <p>File management through windows explorer-select files and directories, copy, move, delete files/directories.</p> <p>Expand compressed directories and files.</p> <p>Open and manage multiple director windows. View and sort files, creating and renaming files/directories, disk operation using file manager.</p> <p>Using essential accessories-notepad, word pad, paint brush, calculators, calendar, character map, system tools, entertainment,</p> <p>Using Multimedia and windows media player and sounds.</p> <p>Using control panel</p> <p>Zippping and unzipping</p> <p>Introduction</p> <p>Linux –</p> <p>Practicing of linux commands</p>	<p>tools, entertainment, Multimedia and windows media player and sounds.</p> <p>Application of control panel</p> <p>Zippping and unzipping</p> <p>Introduction to Linux</p>
4	<p><u>Software Installation</u></p> <p>Practice on Installation of Windows XP, 7 and 8, Linux</p> <p>Installation of MS Office, Libre Office, Open source and utilities, remote control, chat, voice and video, Live CD Operations</p>	<p>Different configurations of Computer system and its peripherals, Compatible with different hardware/software</p> <p><u>Software Installation</u> –</p> <p>Pre-installation - Prerequisites, Install procedure, Rollback or Un-install procedure, Tests.</p> <p>Post-installation – Backup procedure &amp; specifications, Restore procedure, Periodical view check</p> <p>Awareness of IT –Act 2000, its Amendments and Phenomena (T-5)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Provisions of act</li> <li><input type="checkbox"/> Types of offences, fines, imprisonment</li> <li><input type="checkbox"/> Cyber Crime, Cyber Law</li> </ul> <p>Awareness of legal aspects of using computers such as copyright, patent etc.</p>
5-6	<p><u>Internet</u></p> <p>Operations browsing, downloading</p>	<p><u>Internet</u></p> <p>Operations and applications of internet.</p>

	<p>messages, pictures from internet, sending and receiving emails, sending attachments of pictures and text information, E-chatting.</p> <p>Setting of internal Modem and External modem connecting telephone lines through dial-up, ISDN and broadband connections.</p> <p>Testing and trouble shooting of Modem</p> <p>Operating of Routers</p> <p>Security Implementations</p> <p>Troubleshooting of internet connection.</p> <p>Shearing Internet connection through LAN to other computers</p> <p>Operating WiFi access points/modems, setting up of blue tooth and data sharing with mobiles</p> <p>Creating simple VPN implementation</p> <p>Visit to NIC/other Data centers</p>	<p>Setting of modem, connecting dial up connecting ISDN and Broadband connections, DTMF telephone system. Testing and troubleshooting of Modem</p> <p>Routers</p> <p>WiFi, Blue Tooth and VPN Implementation</p> <p>Introduction to Routers/Firewalls, Anti-Spam milters and VoIP</p> <p>Introduction to Data Centers and applications</p> <p>Introduction to Cloud computing</p>
7-8	<p><b><u>Microsoft EXCEL</u></b></p> <p>Practice Excel - creating various worksheets, mathematical calculations, using different formulae,</p> <p>Preparing various types of Graphs/charts, different Chart options, colouring, etc.</p> <p>Practice on Sorting and Filtering</p> <p>Printing worksheet</p>	<p><b>Application of spread sheet</b></p> <p>Advantages of MS Excel,</p> <p>Use of Microsoft Excel features for creating worksheets with mathematical formulae and graphs.</p>
9-10	<p><b><u>Micro Soft Access</u></b></p> <p>Creating and designing tables, forms in MS access</p> <p>Data entering using forms/tables with different fields, modifying structure, generating queries, reports.</p>	<p>Introduction to data base management systems.</p> <p>Data Types</p> <p>E-R Modeling, Data Flow Diagram,</p> <p>Relational Databases, transactional databases</p> <p>Database Creation, NULL's, Dropping a table, DB abstracts</p>
11-13	<p><b><u>HTML</u></b></p> <p>Practice on creation of HTML tags for text, images, links, list, simple layouts, complex layouts, tables, frames, style, internet style sheets.</p> <p>Introduction to Front Page</p>	<p>HTML skeleton</p> <p>HTML tags for text, links, lists</p> <p>HTML tags and web standards for images (graphics)</p> <p>Simple layouts</p> <p>Complex layouts</p> <p>HTML tags for layout</p> <p>HTML tags for tables</p>

	<p>Creating Background Pictures          Creating Tables - Adding and Deleting Rows, Columns, and Cells          Background Colors          Practicing Picture Manipulation - Transparent, Alt Representation Text Tags, Rotating, Thumbnails, Picture Gallery          Practicing Hyperlinks - To 'Outside'/External Sites, Internal Link, Bookmark, Email Addresses, Rollover Styles, Target Frames          Practice on Marquees          Practice on Forms - Search Page, Inserting a Form, One Line Text Box, Option Button, Check Box, Text Area, Drop Down Box, Confirmation Pages          Practice on Sample Forms Page, Date and Time Stamp, Counter, Page Transitions, Changing your Password</p> <p>Practice on - Themes, Banners, Buttons, Headings, Hyperlinks/Bullets/Horizontal Lines, Navigation Bars          Practice on creating Frames, Shared Borders          Practice on Scheduling a Web Page or Picture to Appear</p>	<p>HTML tags for styles          Introduction to Front Page          Background Pictures          Tables - Adding and Deleting Rows, Columns, and Cells          Background Colors          Picture Manipulation - Transparent, Alt Representation Text Tags, Rotating, Thumbnails, Picture Gallery          Hyperlinks - To 'Outside'/External Sites, Internal Link, Bookmark, Email Addresses, Rollover Styles, Target Frames          Marquees          Forms - Search Page, Inserting a Form, One Line Text Box, Option Button, Check Box, Text Area, Drop Down Box, Confirmation Pages          Sample Forms Page, Date and Time Stamp, Counter, Page Transitions, Changing your Password</p> <p>Themes, Banners, Buttons, Headings, Hyperlinks/Bullets/Horizontal Lines, Navigation Bars          Frames, Shared Borders          Scheduling a Web Page or Picture to Appear</p>
14-17	<p><b><u>PHP (Hyper Text Pre Processor)</u></b>          Installation of Apache Web Server          Practice simple PHP programs.          Practicing on programming to test events          Practicing the if statement          Using the else clause with if statement          Practicing The switch statement          Using the ? operator          Practicing the while statement          Practice on do while statement          Practice on for statement          Breaking out of loops          Practicing on Nesting loops          Practicing on Functions and returning value from function          Practicing user defined functions</p>	<p>Introduction to PHP, its features and advantages.          Basic PHP Syntax, tags, Data types, Constants and Variables, Operators and expressions.          PHP Conditional Events, Flow control and looping in PHP          Functions in PHP          Arrays and Strings in PHP          Super Global Variables in PHP. Form handling and validations</p>

<p>Practice on dynamic functions, variable scope</p> <p>Practice on accessing variable with the global statement</p> <p>Practice on Function calls with the static statement</p> <p>Practice on Setting default values for arguments</p> <p>Practice on Passing arguments to a function by value</p> <p>Practice on Passing arguments to a function by reference</p> <p>Testing for function existence</p> <p>Practicing the Writing to the browser</p> <p>Practice on Getting input from forms</p> <p>Practice on Output buffering</p> <p>Practice on Session handling</p> <p>Practice on Regular expression</p> <p>Practice on Common math</p> <p>Practice on Random numbers</p> <p>Practice on File upload</p> <p>Practice on File download</p> <p>Practice on Environment variables</p> <p>Practice on E-mail in PHP</p> <p>Practice on The anatomy of a cookie</p> <p>Practice on Setting a cookie with PHP</p> <p>Practice on Deleting a cookie</p> <p>Practice on Creating session cookie</p> <p>Practice on Working with the query string</p> <p>Practice on Creating query string</p> <p>Practice on Starting a session</p> <p>Practice on Working with session variables</p> <p>Practice on Destroying session</p> <p>Practice on Passing session IDs</p> <p>Practice on Encoding and decoding session variables</p> <p>Practice on Creating and deleting a file</p> <p>Practice on Reading and writing text files</p> <p>Practice on Working with directories in PHP</p> <p>Checking for existence of file</p> <p>Determining file size</p> <p>Opening a file for writing, reading, or</p>	
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	<p>appending</p> <p>Writing Data to the file</p> <p>Reading characters</p> <p><b>Working With Forms</b></p> <p>Forms</p> <p>Super global variables</p> <p>The server array</p> <p>A script to acquire user input</p> <p>Importing user input</p> <p>Accessing user input</p> <p>Combine HTML and PHP code</p> <p>Using hidden fields</p> <p>Redirecting the user</p> <p>File upload and scripts</p> <p><b>Working With Regular Expressions</b></p> <p>The basic regular expressions</p> <p>PCRE</p> <p>Matching patterns</p> <p>Finding matches</p> <p>Replace patterns</p> <p>Modifiers</p> <p>Breakup Strings</p> <p><b>Classes And Objects</b></p> <p>Objects oriented programming</p> <p>Define a class</p> <p>An Object</p> <p>Creating an object</p> <p>Object properties</p> <p>Object methods</p> <p>Object constructors and destructors</p> <p>Class constants</p> <p>Class inheritance</p> <p>Abstract classes and methods</p> <p>Object serialization</p> <p>Checking for class and method existence</p> <p>Exceptions</p> <p>Iterators</p>	
18-21	<p><b><u>My SQL</u></b></p> <p><b><u>Installation of MySQL</u></b></p> <p>Installation of MySQL</p> <p>Configuration of MySql</p> <p>Server Client architecture</p> <p>Practice on Table Creation Rules</p>	<p><b><u>My SQL</u></b></p> <p><i>The SQL Create Command</i></p> <p>Table Creation Rules:</p> <p>Dropping a Table:</p> <p>The SQL-INSERT Command:</p> <p>Inserting NULL</p>

	Practice on MySQL syntac and creating database design Practice on data migration Importing and exporting formats Practice on data tunneling Practice on Database repair and archival Practice on cross database syntax equivalentents. Preparation of Database Project in any Industry/organization	Viewing data (SQL-SELECT): Updating Data in a table (The SQL-UPDATE command): Deleting rows of data (The SQL-DELETE command): Viewing the structure of an already existing table (SQL-DESCRIBE command): MySQL Scripting
22-23	Project work on designing of database	
24-25	Examinations	
26	Admissions for the next session	

**Semester : II**

**Duration : 6 Months**

<b>Week No.</b>	<b>Practical</b>	<b>Theory</b>
1-2	<b>Database and Table Creation</b> Practicing on Creation and use of database, Data type Creation of table Practice on Data integrity, Ddl statement Dml statement, Primary key and foreign key, constraints <b>Insert update Delete Query</b> Simple insert query Insert query using select Update query Delete query	<b>Database and Tables</b> Various data types Data integrity Ddl statement Dml statement Primary key and foregn key constraints
3-5	<b>Selection of Data (using select query)</b> Select all data	<b>Queries</b> -selection of data <b>Where clause</b>

	<p>Select specific column  Customize the display(change the col name in display)  Concatenate the text value in the output  Calculating the column  Practice on <b>where clause</b>  Practice on arithmetic operation, comparisons operator, and/or operator  Range, In and not in Like operator  Null value, order by Top value of the table, Distinct</p>	<p>Arithmetic operation Range  In and not in  Like operator  Null value  Use of order by  Top value of the table  Distinct</p> <ul style="list-style-type: none"> <li>• The SELECT Statement</li> <li>• The WHERE Clause</li> <li>• Using ORDER BY to Sort Data</li> <li>• The GROUP</li> </ul> <p><b>BY Clause</b></p> <ul style="list-style-type: none"> <li>• Joining Table</li> </ul>
6-8	<p>Practice on <b>Aggregate and Group by</b> – Min, Max, Sum, Count, Group by, Compute and compute by Pivot  Practice on <b>Joins</b> - Inner join, Outer join and its type, Cross join, Equi join, Self join  Practice on <b>Sub queries</b> – and exists, Nested sub queries, Correlated sub queries  Practice on <b>Constraints</b> - Primary key constraint, Unique key constraint, Foreign key constraint, Check constraint Default constraint</p>	<p><b>Transact-SQL Programming</b></p> <ul style="list-style-type: none"> <li>• Overview of Transact-SQL</li> <li>• Using Built-In Functions</li> <li>• Controlling Flow</li> <li>• Ranking Results</li> <li>• Limiting Results using TOP</li> <li>• Inner Joins with 2 or more tables</li> <li>• LEFT, RIGHT, FULL Outer joins</li> <li>• Working with String Functions</li> <li>• Working with DateTime functions</li> <li>• Using ROWNUMBER and RANK functions</li> <li>• Using Aggregate Functions</li> <li>• Changing Data Types using CAST and CONVERT</li> <li>• Displaying alternate values using CASE</li> <li>• Using Common Table Expressions</li> <li>• Writing Recursive Queries using Common Table Expressions</li> </ul> <p><b>Aggregate and Group by</b> Min, Max, Sum, Count, Group by Compute and compute by Pivot  <b>Joins</b> - Inner join, Outer join and its type  Cross join, Equi join, Self join  <b>Sub queries</b> - Use of sub queries, Using in and exists, Nested sub queries, Correlated sub queries  <b>Constraints</b> - Primary key constraint,</p>

		Unique key constraint, Foreign key constraint, Check constraint, Default constraint
9	<p><b>Query and manage XML data</b></p> <p>Understand XML datatypes and their schemas and interop w/, limitations and restrictions; implement XML schemas and handling of XML data; XML data: how to handle it in SQL Server and when and when not to use it, including XML namespaces; import and export XML; XML indexing</p>	<p>Limitations of relational data</p> <ul style="list-style-type: none"> <li>- Introduction to semi-structured data and XML</li> <li>- XML query languages</li> <li>- Principles of XML query processing</li> </ul>
10-12	<p><b>Open Tools in Database Systems</b></p> <p>Create a online database using any one of Open Tools</p> <p><b>Postgre SQL (Or) Ingres (Or) Fire Bird, (Or) Cubrid (Or) ISQL</b></p>	<p>Introduction to Open Tools in Database Systems such as Postgre SQL or Ingres or Fire Bird, Cubrid, ISQL</p>
13	<p><b><u>Overview of Information Security</u></b></p> <p>Video show on Information Security</p> <p><b><u>Overview of Security threats</u></b></p> <p>Video show on Security Threats Mock test on security threats</p> <p><b>Information Security Vulnerabilities</b></p> <p>Video show on Security Vulnerabilities</p> <p><b><u>Risk Management</u></b></p> <p>Video show on Risk Management Mock test on Risk Management</p> <p><b>Securing Database</b></p> <p>Video show on Securing Database</p>	<p><b><u>Overview of Information Security</u></b></p> <p>Understanding Information Security - Need of the Information security, Basics of IS (CIA) , History and evolution of IS, Dimensions of Information Security, Intranet/Internet, Information Security and Cyber Security relationship</p> <p>Why Care About Security? - Challenges to Information Security</p> <p>Benefits of Information of Security</p> <p>Understanding techniques to enforce IS in an organization</p> <p>Identifying tools to enforce Information Security</p> <p>Identifying frameworks to enforce Information Security</p> <p><b><u>Overview of Security threats</u></b></p> <p>Overview of Information Security Threats</p> <p>Types of threats – DDoS, Malicious codes, Espionage, etc</p> <p>Identification of Threats - Probing of threats, Scanning of threats, Modus Operandi, Sources of Threats, External threats , Internal threats , Best Practices or Guidelines used to Identify</p>

		<p>Threats - Conduct regular education and awareness trainings for employees and third parties, Best Practices or Guidelines used in mitigation of threats, Deploying up to date technology, Maintaining Systems and Procedures, Educating Users, Conducting regular education and awareness trainings for employees and third parties</p> <p>Collaborate with peers and experts through different forums to understand contemporary issues and solutions</p> <p><b>Information Security Vulnerabilities</b></p> <p>Why do Information Security Vulnerabilities exists - Types of Technical Vulnerabilities, Types of Native Vulnerabilities, Understanding Security Vulnerabilities, Flaws in Software or Protocol Designs, Weaknesses in How Protocols and Software Are Implemented, Weaknesses in System and Network Configurations, Weaknesses in Web or Cloud applications, Weaknesses in Online e-transactions, Browser Security and Role of cookies and pop-ups, Security holes in Browser, Web Applications, OS, and Smart phones, Identifying role of Social sites and media in cyber security and vulnerability</p> <p>Understanding Vulnerability Assessment Tools and Techniques , Techniques to Exploit Vulnerabilities, Techniques to Fix the Vulnerabilities, Identify security vulnerabilities on a regular basis using requisite tools and processes.</p> <p>How to fix the security gaps and holes, Identifying liabilities of service providers, software vendors, Software authors, system owners, and third parties</p> <p>Best Practices and Guidelines to mitigate security Vulnerabilities</p> <p><b><u>Risk Management</u></b></p> <p>What is Risk?</p> <p>Relationship between Threat, Vulnerability, and Risk</p> <p>What Is the Value of an Asset?</p>
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		<p>What Is a Threat Source/Agent?</p> <p>Examples of Some Vulnerabilities that Are Not Always Obvious</p> <p>What Is a Control?</p> <p>What Is Risk Likelihood and consequences?</p> <p>What Is Impact?</p> <p>Control Effectiveness</p> <p>Risk Management</p> <p>Purpose of Risk Management</p> <p>Risk Assessment (Phases)</p> <p>Why Is Risk Assessment Difficult?</p> <p>Types of Risk Assessment</p> <p>Different Approaches to Risk Analysis</p> <p>Best Practices and Guidelines in Assessing and Calculating Risks</p> <p>Develop and implement policies and procedures to mitigate risks arising from ICT supply chain and outsourcing.</p> <p>Best Practices and Guidelines in Mitigating Risk</p> <p><b>Securing Database</b></p> <p>Database Security Issues - Controlling Access, Database Integrity, Administrative Controls, Securing Database from Server Failures</p> <p>Redundancy and availability of Database</p> <p>Types of attacks</p> <p>Protection Against Viruses and malware</p>
14	<p><b>Taking Backup</b></p> <p>Practice on configure and maintain back up strategy, manage different back up models</p>	<ul style="list-style-type: none"> <li>• Planning Backups</li> <li>• Performing a Backup</li> <li>• Designing Your Backup Strategy</li> </ul>
15	<p><b>Restoring Backup</b></p> <p>Practice on Restoring a database to point in time</p> <p>Practice on Restoring from a corrupted drive</p> <p>Practice on Restoring in create a restore strategy for redundant server</p>	<ul style="list-style-type: none"> <li>• Restoring User-Defined Databases</li> <li>• Recovering System Databases</li> </ul>
16-17	<p><u>Security of Database</u></p> <p><u>Creation of roles and functions</u></p> <p>Manage logins and server roles</p> <p>Configure server security; secure the SQL</p>	<ul style="list-style-type: none"> <li>• Identifying the Security Features of SQL Server</li> <li>• Creating Login Accounts</li> <li>• Assigning Login Accounts as Database</li> </ul>

	<p>Server using Windows Account / SQL Server accounts, server roles; create login accounts; manage access to the server, SQL Server instance and databases; create and maintain user-defined server roles; manage certificate logins</p> <p>Manage database permissions Configure database security; database level, permissions; protect objects from being modified</p> <p>Manage users and database roles</p> <p>Create access to server / database with least privilege; manage security roles for users and administrators; create database user accounts; contained logins</p> <p>Troubleshoot security</p> <p>Manage certificates and keys; endpoints</p>	<p>Users</p> <ul style="list-style-type: none"> <li>• Implementing Statement and Object Permissions</li> <li>• Defining Linked Servers</li> </ul>
18-19	<p><u>Administrating reports with reporting services (<b>Apache Server</b>)</u></p> <p>Web Sever configuration Manager</p> <p>Web Server surface area configuration</p> <p>Web server management studio</p> <p><u>Reporting services tools</u></p> <p>Report manager</p> <p>Reporting services configuration and</p> <p>Report services command line utilities</p>	<ul style="list-style-type: none"> <li>• Tour of Features</li> <li>• Reporting Services Architecture</li> <li>• Reporting Services Terminology</li> <li>• Reporting Services Editions</li> <li>• Deconstructing Reporting Services</li> <li>• Shared Data Sources</li> <li>• Creating Reports from Scratch</li> <li>• Deploying Reports and Data Sources</li> <li>• Exporting Reports and Printing</li> <li>• Using the Web-Based Report Manager</li> </ul>
22-23	Designing of Web based Database software Project work in industry/organisation	
24-25	Examinations	
26	Admissions for the next session	

**Tool & Equipment for a batch of 20 trainees**

<b>Sl. No.</b>	<b>Name of the items</b>	<b>Quantity</b>
1	<u>Laptop</u> : i3 2nd generation processor or equivalent and above with major minimum features as below:- 1) Speed :- 2.1 GHz or Higher. 2)Cache Memory : - Minimum 3 MB or better. 3)RAM :- 4 GB DDR-III or Higher. 4)Hard Disk Drive :- 500GB or Higher,5400 rpm(minimum) or Higher, WiFi Connectivity. 5) Network Card : Integrated Gigabit Ethernet(10/100/1000). 6) Paper Licensed Operating System / OEM Pack(Preloaded). 7)Antivirus / Total Security	1 No.
2	Server for LAN – As Required. Latest 32/64 bit processor or Higher with PCI Express Video Card 4GB VRAM 4 GB RAM expandable 19" TFT Keyboard, Mouse, DVD OR BLU-RAY WRITER with latest Paper license of OS - Server Edition Internet, Antivirus / Total Security - Server Edition & UPS for Power Back up.	1 No.
3	WORKSTATION/NODES : 2nd Generation Core i3 Processor or Equivalent and above with major minimum features as below : 1) 32/64 Bit Processor (3.06 GHz or Higher,4 MB 4-Core) or Higher. 2) Network Card : Integrated Gigabit Ethernet(10/100/1000). 3) RAM : 2 GB/ 4 GB DDR3 or Higher. 4) 320 GB / 500 GB HDD or Higher. 5) 19" TFT Monitor / Higher 6) DVD Writer 7) PS2 / USB KeyBoard , USB/Optical Mouse with latest Paper Licensed Operating System / OEM Pack(Preloaded) Professional/Ultimate Edition with Internet Facility.	10 Nos.
4	Network Terminator (NT1) /Switch	1 No.
5	Terminal Adapter (TA)/Switch	1 No.
6	Network Interface Card (Ethernet Card 10/100/1000 Mbps)	4 Nos.
7	Fire extinguisher	1 No.
8	Vacuum Cleaner (For IT & ITES Sector)	1 No.
9	LCD / DLP projector	1 No.
10	Laser Printer (One Network Printer)	2 Nos.
11	Inkjet Printer (Multifunctional)	1 No.
12	Different Expansion Cards	1 Each
13	24 port Switch /Router	1 Each
14	500 VA or higher off – line UPS FOR NODES and server	11 Nos.
15	Air Conditioner 1.5 ton	2 Nos.
16	Modem (Internal & External)	2 Nos.



17	Broad Band connection	1 No.
18	Telephone Line	1 No.
19	CD / DVD Writer 2 nos.	2 Nos.
20	Networking cables	As Required.
21	Room temperature thermometer	1 No.
<b><u>SOFTWARE</u></b>		
1	Windows O.S./ Lunux (Latest version) Network Support with 10 User license professional/academic edition	1 No.
2	MS Office latest version / Open Office 10 user license professional/academic edition (along with MS access and MS Front page)	1 No.
3	Anti Virus Latest version/ Total Security software with (10 User License) and CLAMAV	1 No.
4	Visual Studio (Latest Version) with 10 user license	1 No.
5	MY SQL Server (Open source)	1 No.
6	Apache server	1 No.
7	Front Page Editor (Academic edition with 10 user license)	1 No.
<b><u>FURNITURE</u></b>		
1	Computer Tables	11 Nos.
2	Printer Tables	3 Nos.
3	Instructor Table	1 No.
4	Instructor's Chair	1 No.
5	Straight back revolving & adjustable chairs (Computer Chairs )	20 Nos.
6	Steel cupboards drawer type	3 Nos.
7	Cabinet with drawer	2 Nos.
8	Pigeon hole cabinet -16 compartments	1 No.
9	Steel almirah big size	1 No.
10	Steel almirah small size	2 Nos.
11	Class room chairs with writing pad moulded type	20 Nos.
<b><u>Trainee Tool Kit</u></b>		
1	Screwdriver Set of min. 5 bits (Combination of star & minus) + 1 ext. rod	1 Set
2	Crimping Tool for BNC and RJ-45 connectors	1 No. Each
3	Punching Tool	1 No.

**Note : 1. All Software should be Network Version**

**2. Some of Course Related CBTs can be purchased (Optional)**

NOTE- LATEST VERSION OF HARDWARE AND SOFTWARE should be provided.

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