

D.Voc. in Software Development

Syllabus

(With effect from 2018)



**Computer Centre
The Gandhigram Rural Institute
(Deemed to be University)
Gandhigram – 624302
Tamil Nadu**

D.Voc in Software Development

Syllabus

(With effect from 2018)

Level (NSQF)	Code No.	Educational Component	Credits	Marks		
				CFA	ESE	Total
5 SEMESTER I	Theory					
	18DSD0101	IT fundamentals and Office Automation	3	20	30	50
	18DSD0102	Web designing	3	20	30	50
	18DSD0103	Programming in C and Software Development	3	20	30	50
	18DSD0104	Maintenance of Computer Systems and Computer Networks	3	20	30	50
	LAB/ Practical					
	18DSD0105	Web designing Lab	1.5	30	20	50
	18DSD0106	Programming in C Lab	1.5	30	20	50
	On-Job-Training (OJT) / Qualification Packs					
	18DSD0107	Any one	15			200
	Web Developer					
	System Maintenance Engineer					
6 SEMESTER II	Theory					
	18DSD0201	Financial Accounting	3	20	30	50
	18DSD0202	Mobile Application Development - Android	3	20	30	50
	18DSD0203	Object Oriented Programming with Java	3	20	30	50
	18DSD0204	Multimedia Tools and Applications	3	20	30	50
	LAB / Practical					
	18DSD0205	Financial Accounting Lab	1.5	30	20	50
	18DSD0206	Java Lab	1.5	30	20	50
	On-Job-Training (OJT) / Qualification Packs					
	18DSD0207	Any one	15			200
	Junior Software Developer					
	Mobile Application developer					

CFA – Continuous Formative Assessment (Internal Evaluation)
 ESE – End Semester Examination (External Evaluation)
 NSQF – National Skill Qualification Framework

SEMESTER I

18DSD0101 - IT fundamentals and Office Automation

Unit 1: Introduction to Computer: Definition of a computer – Origin of Computer- Characteristics- Computer terminologies, Block diagram, Memories, Devices - Basics of Operating Systems, Software - programming. Information Technology - Introduction, What is ICT? - Network, Internet, Web, email, browsers - Social networking.

Unit 2: Word Processing - Introduction Advantages – Definition. Document: Create - save - Printing Resave – Close- Exiting word. Editing: Opening document – cursor movement - selecting text - deleting - undo redo - Moving text -Copying text. Formatting text: Font - paragraph formatting - bullets & numbering - getting help - find and replace text - spell checking and correction - grammar checking - auto correct - auto text - using thesaurus – using tabs - defining & changing page setup - page print options. Tables: creating &formatting, multiple columns. Math equations and type setting.

Unit 3: Spread Sheets: Introduction to worksheet - Definitions - Advantages - Organization of worksheet area - entering information - number - Formula - save - data alignment - editing - range -definition - specifying - changing column width - row height - centering cell across column, hiding columns and rows - moving and copying data - inserting and deleting rows and columns - getting help. Formatting the worksheet - printing - setting up page and margin defining header and footer - print options. Chart: creation - changing type - resize and move –controlling the appearance - modifying - deleting - printing - naming ranges - using statistical, Mathematical and financial functions - using drawing tool bar.

Unit 4: Presentation: Introduction - Menus - Toolbar - Navigating Power Point– Creating Slides, Presentation, Animation, etc - working with Power Point. Internet: Internet Browsing, creating mail ID, Using search engines etc. – To know important govt. webpage’s for various forms, formats, exams etc, National/International University/Institute websites.

Unit 5: Data Base Management: Introduction , Creating a Database, Different Ways of Creating a table by entering data in a datasheet, Working with Tables, Field/Variable name Conventions, About the Data types, Setting Primary Keys, Field Properties- Field Size, Format, Modifying the Table Design - To insert the field within the table, Relationship in a Database Query, Basics Report, Parts of a Report, Creating a Report

References:

1. Fundamentals of Information Technology, S.K.Bansal, A.P.H. Publishing company, New Delhi, 2002.
2. 2007 Microsoft Office System step by step, Joyce Cox, Joan Preppernau, Steve Lambert and Curtis Frye, 2007

MOOC Resources: Spoken-Tutorial.org

1. Introduction to Computers
2. Libre office – Writer, Calc, Impress and Base

18DSD0102 - Web Designing

Unit 1: Introduction to HTML: Headings - Linking- Internal linking Images- Special Characters and horizontal Rules - Lists- Tables- Forms- Meta elements - Cascading Style sheets: Inline Styles-Embedded Style Sheets- Conflicting Styles - Linking External Style Sheets - XML: Introduction -XML Basics- Structuring Data Document Type Definitions

Unit 2: Java Script: Introduction to Scripting -Control Statements Functions - Objects: Math object -Array Object-String Object - Document object - Boolean and Number objects -.Window object - Dynamic HTML: Events-Using cookies

Unit 3: PHP Scripting: Create a Simple PHP Program -Using Variables in PHP- Operators and Expressions Conditional and Branching - Loops and Arrays - Working with Files: File Modes- Reading and Writing Characters in Files - Reading Entire Files - Random Access to File - Getting information on Files - Working with Directories - Uploading Files HTML Form fields and PHP

Unit 4: Database connectivity with MySql, MySql Basics - Creating database, Performing basic database operation (Insert, Delete, Update, Select), setting query parameter Executing query, Join (Cross joins, Inner joins, Outer Joins, Self joins).

Unit 5: Reports using PHP and MySql - Print function, Pdf reports - Project

References:

1. Mastering HTML, CSS and JavaScript Web Publishing, Laura Lemay, Rafe Colburn, Jenifer Kymin, BPB Publication, 2016
2. Learning PHP, MySQL and JavaScript with jQuery, CSS and HTML5, Robin Nixon, O'Reilly, 2015

MOOC Resources: Spoken-Tutorial.org

1. PHP and MYSQL
2. HTML
3. Drupal

18DSD0103 - Programming in C and Software Development

Unit 1: System concept definition – Characteristics of System – Types of Systems – Phases of Software development life cycle – Role of System Analyst – Different approaches in software development – User Interface Design – System Testing

Unit 2: C Programming fundamentals Program Structure, Identifiers - Structure, Identifiers – Data Types – Integer – Float – Character – Constants- Variables Operators and Expressions ,Managing Input and Output Operations - Control Structures: Decision making with if Statement – if ... else Statement – Nested If ... else Statements, Loop Statement: for Statement – do... while Statement – while ...do Statement – goto Statement – switch Statement

Unit 3: C Functions Mathematical Functions – sin – cos – tan – asin – acos – atan – sqrt – pow – log, String Functions – strcpy – strcat – strcmp –strlen – strlwr –strupr, User-Defined Functions

Unit 4: Arrays And Structures : Arrays – Definition – Declaration – Entering Values in Arrays – Manipulating Arrays – Passing an Array Structure and Union: Definition – Assigning Structure Variable – Assigning Initial Values – Using a Structure – Structure Arrays – Structures and Functions- Union

Unit 5: Pointers And File Operations - Understanding Pointers – Pointers and Functions, File Operations: Understanding Files – Declaring a File – Opening a File – Closing a File – File Input and Output Functions, Formatted Input and Output – Working With Structures – Adding Data to a File – Reading and Printing a Disk File

Text Books:

1. Programming in ANSI C, E. Balagurusamy, Tata McGraw Hill, 2011
2. Analysis and Design of Information Systems, V.Rajaraman, PHI Learning Pvt. Ltd, 2018

References:

1. The C Programming Language, Brian W. Kernighan and Dennis M. Ritchie, Prentice- Hall, 2006
2. Understanding Pointers in C, 4/e, Yashavant Kanetkar, BPB Publications, 2008

MOOC Resources: onlinecourses.nptel.ac.in

Problem solving through programming in C

18DSD0104 - Maintenance of Computer Systems and Computer Networks

Unit 1: Introduction to computers, classification, generations, applications. Basic blocks of a digital computer. - Types of cabinets, relation with mother board form factor - Main devices - Types of I/O devices and ports on a standard PC for connecting I/O devices - Function of keyboard, brief principle, types, interfaces, connectors, cable - Function of Mouse, brief principle, types, interfaces, connectors, cable - Function of monitor, brief principle, resolution, size, types, interfaces, connectors, cable - Function of Speakers and Mic, brief principle, types, interfaces, connectors, cable - Function of serial port, parallel port, brief principle of communication through these ports, types of devices that can be connected, interface standards, connectors, cable.

Unit 2: Types of Processors and their specifications (Intel: Celeron, P4 family, Xeon, dual core, quad core, core 2 duo, i3,i5,i7 and AMD) - Memory devices, types - Semiconductor memories, RAM, ROM, PROM, EMPROM, EEPROM, Static and dynamic - Drive bay, sizes, types of drives that can be fitted. Precautions to be taken while removing drive bay from PC - Fitting Hard Disk Drive HDD interface IDE, SCSI-I/2/3 comparative study. Latest trends in interface technology in PC and server HDD interface. - CMOS setting.(restrict to drive settings only).

Unit 3: OS installation Windows, Linux, - Partitioning hard disk (primary and extended partitions) - Data Backup - PC cleaning - Virus removal - Software Installation - Installing Hardware Drivers - Introduction of laptop and comparison of various Laptops - Block diagram of laptop & description of all its sections Study of parts of a laptop - Input system: Touchpad, Trackball, Track point, Docking station, Upgrade memory, hard disk, replacing battery, Configuring wireless internet in a laptop.

Unit 4: Introduction to Computer Networks – Advantages of Networking, Peer-to-Peer and Client/Server Network Network Topologies – Star, Ring, Bus, Tree, Mesh, Hybrid - Type of Networks – Local Area Networks (LAN), Metropolitan Area Networks (MAN) - Wide Area Networks (WAN) and Internet, Ethernet, Wi-Fi, Bluetooth, Mobile Networking, Wire and wireless Networking - Difference between Intranet and Internet. Protocols, TCP/IP, FTP, Telnet etc. - Setting IP Address(IP4/IP6) & Subnet Mask, Classes of IP Addressing.

Unit 5: Network Components – Modems, Firewall, Hubs, Bridges, Routers, Gateways, Repeaters, Transceivers, Switches, Access point, etc. – their types, functions, advantages and applications - Communication Media & Connectors – Unshielded twisted-pair (UTP), shielded twisted-pair (STP),

Fiber Optics and coaxial cable: RJ-45, RJ-11- Understanding color codes of CAT5, 6 cable - Internet Access Techniques, ISPs and examples (Broadband / Wi-fi) - Surveillance using network devices - Network Security

References:

1. PC Hardware Theory and Practical N.S.Reddy and NEO, Kindle Edition
2. Computer Networks: Networking Theory and Practical, N.S.Reddy and NEO, NEO, Publishing House, 2016

18DSD0105 - Web designing Lab

Web page design using HTML Tags

- Creation – Ordered List, Unordered List, Tables, Frames, Links, Image Anchor, Image Maps
- Using Form Controls with Input Tag, Cascading Style Sheets
- XML – Creating XML Document

Java Script

- Simple Programs in JavaScript using Control Structures, Arrays, Strings, Objects, Event Handlers, Form Validation

PHP and MySql

- Programs on Arrays using PHP Array Functions
- Validation of HTML Form Inputs and Processing Using Global Variables
- Programs based on PHP and MySQL Database Connectivity
- Simple Project on Web Designing

18DSD0106 - C Programming Lab

- C Programs with Control Structures: while, do...while, for, if...else, switch, continue, break
- Array Handling: Single dimensional, Multidimensional
- Pointers
- Functions: Simple and Recursive Functions, Functions and Pointers
- File Handling

SEMESTER - II

18DSD0201 - Financial Accounting

unit 1: Definition of E commerce, Types, scope and benefits of E commerce.
- Difference between E commerce and traditional commerce - Capabilities requirements and Technology issues for E commerce - Types of E commerce web sites - Building business on the net - Concepts of on line Catalogues, Shopping carts, Checkout pages - Payment and Order Processing, Authorization, Chargeback and other payment methods - Security issues and payment gateways.

Unit 2: Basics of Accounting, Type of accounts , Rules of Debit and Credit, Voucher Entry, Ledger Posting, Final Accounts Preparation - Cash Book, Ratio Analysis, Depreciation, Stock Management, Adjustment Entries - Cash/Funs flow - GST

Unit 3: Introduction to Tally, features and Advantages - Implementing accounts in Tally - Familiarization with the Tally interface Company creation, Account Creation, Voucher Entry in Tally.

Unit 4: Inventory Information - Creating Stock groups- Stock categories - Creating Stock items - Creating Godowns - Voucher type - Pure Inventory Vouchers - Purchase/Sales orders and invoices

Unit 5: Reports - Trial Balance- Balance Sheet - Profit and Loss account - Stock summary - Ratio analysis - Day Book - Bank Reconciliation Statement - Payroll Module - TDS Module - GST Module

Text Book:

1. Tally 9, Dr. Namrata Agrawal, Dreamtech Press, New Delhi

18DSD0202 - Mobile Application Development - Android

Unit 1: Getting Started - Overview of Android and Android SDK - Getting to know your Android development environment - Writing your first Android application - Running and debugging your application - Test your application on device

Unit 2: Android Applications - The Big Picture: Android architecture - Android application model - Overview of Android application building blocks - Application design guidelines - Application lifecycle

Unit 3: Building User Interface: Overview of Android's view structure - Android built-in layouts - Defining a layout in XML - Android built-in Views - Event handling - Building custom views and layouts

Unit 4: Building Android Applications: AndroidManifest.xml file - the control file - Building activities - Building intents - Building and using services - Notifications - Building and using content providers

Unit 5: Data Stores: Overview of storing, retrieving, and exposing data - Preferences - Files - SQLite Databases - Content Providers - Data access over the network

Android Media API and Building Location Based Applications:

- Playing audio/video
- Media recording
- Where am I
- LocationManager
- Integrate with Google Map

References:

1. Android Application Development
2. All-in-one for Dummies
3. 2nd Edition – Barry Burd

18DSD0203 - Object Oriented Programming with Java

Unit 1: Introduction – Object-Oriented Programming Concepts, encapsulation, inheritance, polymorphism, features of Java, types of Java programs, Java architecture -Literals - integer, floating point, character, string and boolean literals. data types - integer, floating point , character and Boolean Variables The structure of a Java program – comments, expressions and statements, type conversion, block statements and scope Operators –arithmetic, bitwise, relational, boolean, logical and ternary. Operator precedence Control statements – if...else, switch, while , do...while, for..., break, continue and comma statement. Arrays - one-dimensional and multi-dimensional arrays

Unit 2: Classes – defining a class, the new operator and objects, the dot operator, method declaration and calling - Constructors, instance variable hiding, this in constructor, method overloading, passing objects as parameters to methods Inheritance – creating subclasses, method overriding, final class, final method, final variables Package, the import statement, access modifier, interfaces, defining interfaces, implementing an interface

unit 3: Wrapper classes – the number class - Byte, Short, Integer, Long, Float, Double, Character and Boolean classes. Mathematical methods - exceptions -types of exceptions Catching exceptions, nested try blocks, hierarchy of multiple catch blocks, throw statement, creating your own exceptions, throws statement, the finally block, checked and unchecked exceptions. Input and Output classes - i/o streams, the file class, byte stream, InputStream, OutputStream, disk file handling, FileInputStream, FileOutputStream, ByteArrayInputStream, ByteArrayOutputStream, filtered byte streams, BufferedInputStream, BufferedOutputStream, DataInputStream, DataOutputStream, SequenceInputStream, ObjectOutputStream, ObjectInputStream, random access file, character stream, CharArrayReader CharArrayWriter, InputStreamReader, OutputStreamWriter FileWriter, FileReader, BufferedReader, BufferedWriter.

Unit 4: Strings – the String class, equality operator (==) and equals method, string concatenation with + , the StringBuffer class. Threads - multitasking, creating a thread, states of a thread Multithreaded programming, thread priorities, join method Controlling the threads Synchronizing methods, inter-thread communication – wait, notify and notify All

Unit 5: Applets – applet basics, methods of building an applet, some general methods of applet, displaying text in status bar, embedding applet information The html applet tag, reading parameters into applets, colors in

applet, getting document base and codebase Interfaces in applet, multimedia in applet, playing audio clips, images in applet, applet showing other html pages Graphics - drawing lines, rectangles, ovals and circles, arcs, polygons and polyline Creating a graphics clip, colors in graphics, constructors for Color class Color methods, setting paint modes, Fonts in graphics, determining fonts available in the system - setting fonts

Text Book:

1. Programming in Java2, Dr.K.Somasundaram, Jaico Publishing House, New Delhi, 2009.

References:

1. Introduction to JAVA Programming, K. Somasundaram, Jaico Publishing House, New Delhi, 2013.
2. Java2: The Complete Reference, 4/e, H.Schildt, TMH Publishing Company, New Delhi,2001. Foundation Classes, Mathew T.Nelson, McGraw-Hill, 1998.
3. Do 'n' Learn JAVA – A Practical Approach, K.Somasundaram, Anuradha Publications, Chennai, 2013.

18DSD0204 - Multimedia Tools and Applications

Unit 1: Multimedia Introduction - Multimedia Hardware Unit, Multimedia Software - Multimedia elements Text, Image, Audio, Video and animation - Multimedia applications

Unit 2: Text and Image: Introduction Image editing Softwares - Image editing - Text font - Text formatting - Image

Unit 3: Audio - Fundamentals - Audio capturing and editing

Unit 4: Video: Digital Video introduction - Formats - Video capturing and editing using video editing software

Unit 5: Animation: Introduction - Software tools for Animation - Creating and editing

Reference:

1. Multimedia: Making It Work, Tay Vaughan, Tata McGraw-Hill Publishing, Seventh Edition, 2008

Web resources: www.audacityteam.org/help/documentation

MOOC Resources: Spoken-Tutorial.org

1. GIMP
2. Blender

18DSD0205 - Financial Accounting Software (Tally)

Exercises using Tally

- Company creation
- Account Creation
- Voucher Entry
- Creating Stock groups
- Stock categories
- Creating Stock items
- Creating Godowns
- Purchase/Sales orders and invoices
- Trial Balance
- Balance Sheet
- Profit and Loss account
- Stock summary
- Ratio analysis
- Day Book
- Bank Reconciliation Statement
- Payroll

18DSD0206 - Java Lab

Programs using

- Control statements, arrays
- Classes, Inheritance
- Exception handling
- Input / Output classes
- Strings
- Threads
- Applets
- Graphics
- Event handling
- Applications using the above concepts

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