

DIPLOMA IN COMPUTER APPLICATION

Diploma in Computer Application (DCA) course has been designed to provide the advance skills of computer, TallyPrime, Web Designing, Programming with Python. After completion of this course a student will be able to:

- Knowledge of computer concepts
- Working with Computer applications
- Internet, network and world wide web
- Basic Skills of Accounting
- Manage accounting in TallyPrime
- Payroll Management
- Web Designing and Publishing Tools
- Knowledge of HTML, CSS and JavaScript
- Programming with Python Language
- Live Projects and case studies

COURSE DESCRIPTIONS	
Course Name	Diploma in Computer Applications
Abbreviation	DCA
Course Duration	12 Month (Twelve Months)
Course Medium	Hindi or English
Course Category	Computer
Number of Exam	04
Mode of Course	Offline
Description	This course is design for those students who want to build his/her career in computer field. This course covers the topics related to computer, accounting with TallyPrime, Web designing and Publishing, Programming with Python Language. This Course is managed in Four Modules. Details of each topic and modules are as follow:

MODULE – I : Computer Fundamentals

Introduction to Computer, Types of Computer, Functions of a Computer, CPU, Applications of Computer, Input and Output Devices, Computer Memory, hardware and Software, Operating System with Windows 10, Working with Files and Folders, User Account and Parental Control, Microsoft World Basic, Creating, Opening, Closing and saving a Document, Working with text, Document and Objects, Mail Merge, Macro, Working with Workbook, Formula and Functions, Charts and Pivot Table, Creating and Opening Presentation, Slides and Slide Show, Computer Network, Internet, Application of Internet, E-mail, Social Networking & Blogs, E-commerce, Cyber Security, Indian Banking System, Digital Financial Tools, Internet Banking, Online Bill Payment

MODULE – II : Tally Financial Accounting

Basic Accounting Concepts, Getting Start Tally, Working with Company, Accounts Master, Accounts Group, Ledger, Voucher Types, Voucher Class, Voucher Entry, Accounting Voucher, Single Voucher Entry Mode, Non Accounting Voucher, Inventory Management, Purchase and Sales, Reports, Data Management, Security Management, Multi-Currency, Interest Calculations, Advance Features, Goods and Service Tax, Tax Deducted at Sources-TDS

MODULE – III : Web Designing and Publishing

Introduction of Internet, World Wide Web (WWW), webpages and Website, Front-end and Back-end, Client and Server Scripting Language, Editors, HTML, Basic HTML Tags, Formatting Tags, Creating Tables in HTML, FRAME and FRAMESET, Cascading Style Sheet (CSS), CSS Framework, JavaScript, Angular JS, Photo Editors, Photoshop Tools, Web Publishing, Browser and web Publishing Tools.

MODULE – IV : Programming with Python

Introduction of Programming, Programming Languages, Steps of Programming, Testing and Debugging, Algorithm, Working with Python, Conditional Statements, Looping Statement, Creating a List, Functions and Methods of List, Creating and accessing a Tuple, Tuple Operations, Creating and accessing a Dictionary, Library Functions, User Defined Functions, File Processing, Scope and Module, Creating NumPy Array

Detailed Syllabus

MODULE – I : Computer Fundamentals

1. Introduction to Computer

- 1.1 What is Computer?
 - 1.1.1 Characteristics of Computer
 - 1.1.2 Limitations of Computer
 - 1.1.3 History of computer
 - 1.1.4 Generation of computer
- 1.2 Types of Computer
- 1.3 Functions of a Computer System
- 1.4 Central Processing Unit (CPU)
 - 1.4.1 Types of Processor
 - 1.4.2 Motherboard
- 1.5 Applications of Computer
- 1.6 Input and Output Devices
 - 1.6.1 Input Devices
 - 1.6.2 Output Devices
- 1.7 Computer Memory
 - 1.7.1 Cache Memory
 - 1.7.2 Primary Memory
 - 1.7.3 Secondary Memory
- 1.8 Hardware and Software
 - 1.8.1 Hardware
 - 1.8.2 Software
- 1.9 Booting Process of a system
- 1.10 Representation of Data/Information

2. Microsoft Windows 10

- 2.1 Operating System
 - 2.1.1 Functions of Operating System
 - 2.1.2 Desktop Operating System
 - 2.1.3 Mobile Operating System

- 2.2 Microsoft Windows 10
- 2.3 Getting Start Windows 10
 - 2.3.1 Desktop
 - 2.3.2 Taskbar
 - 2.3.3 Icon and Shortcut
- 2.4 Operating System Settings
 - 2.4.1 Setting Mouse Properties
 - 2.4.2 Setting system Data and Time
 - 2.4.3 Setting System Properties
 - 2.4.4 Add/Delete Programs/Features
 - 2.4.5 Add and Remove Printers
- 2.5 Working with Files and Folders
- 2.6 User Account and Parental Control
- 2.7 Security Features in Windows10
- 2.8 Windows Admin Tools
- 2.9 Windows Applications

3. Microsoft Word 2016

- 3.1 Introduction
- 3.2 Microsoft World Basic
 - 3.2.1 Starting Microsoft Word
 - 3.2.2 Menu bar
 - 3.2.3 Using Help
- 3.3 Creating a Document
- 3.4 Opening and Closing Document
- 3.5 Saving and Sharing Document
- 3.6 Document Setup and Printing
- 3.7 Working with Text
- 3.8 Working with Document
 - 3.8.1 Using Paragraph Indent
 - 3.8.2 Using Tabs
 - 3.8.3 Line and Paragraph Spacing
 - 3.8.4 Bullets and Numbering
 - 3.8.5 Using Header and Footer
 - 3.8.6 Using Multi Column
 - 3.8.7 Inserting Page Number
 - 3.8.8 Using Rulers and Gridlines
 - 3.8.9 Using hyperlinks
 - 3.8.10 Using Page Break

- 3.9 Working with Objects
- 3.10 Table Manipulation
- 3.11 Mail Merge
- 3.12 Macro
- 3.13 Track Changes and Comments
- 3.14 Inspecting and Protecting Document

4. Microsoft Excel 2016

- 4.1 Introduction
- 4.2 Starting Microsoft Excel 2016
- 4.3 Elements of Excel 2016 Window
 - 4.3.1 Worksheet and Cells
 - 4.3.2 Cell Addressing
- 4.4 Working with Workbook
 - 4.4.1 Creating a new Workbook
 - 4.4.2 Opening & Closing a Workbook
 - 4.4.3 Saving and Sharing a Workbook
 - 4.4.4 Printing a Workbook
 - 4.4.5 Page Layout
- 4.5 Manipulation of Cells
 - 4.5.1 Cell Contents
 - 4.5.2 Formatting Cells
- 4.6 Manipulation of Worksheet
 - 4.6.1 Insert or Delete a worksheet
 - 4.6.2 Insert and Delete Row/Column
 - 4.6.3 Modify Row and Column
 - 4.6.4 Text Wrapping & Merging Cells
- 4.7 Working with Data
 - 4.7.1 Sorting of Data
 - 4.7.2 Filtering of data
 - 4.7.3 Use Advance Filter
 - 4.7.4 Using Freeze Panes
 - 4.7.5 Other viewing Options
 - 4.7.6 Using Fill Tool
- 4.8 Group and Subtotals
- 4.9 Formula and Functions
- 4.10 Charts
- 4.11 Pivot Table
- 4.12 What-if Analysis

5. Microsoft PowerPoint 2016

- 5.1 Introduction
- 5.2 Starting Microsoft PowerPoint 2016
- 5.3 Elements of PowerPoint Window
- 5.4 Creating and Opening Presentation
- 5.5 Saving and Sharing Presentation
- 5.6 Slides
- 5.7 Manage Presentation and Slides
 - 5.7.1 Viewing the Presentation
 - 5.7.2 Slide Master View
 - 5.7.3 Choose setup for Presentation
 - 5.7.4 Adding Header and Footer
 - 5.7.5 Using Ruler, Gridlines, Guides
 - 5.7.6 Printing Slides and Handouts
- 5.8 Slide Show
- 5.9 Working with Objects
- 5.10 Hyperlinks and Action Buttons
 - 5.10.1 Hyperlinks
 - 5.10.2 Action Buttons

6. Internet and World Wide Web

- 6.1 Computer Network
- 6.2 Network Topology
- 6.3 Internet
 - 6.3.1 Concept of Internet
 - 6.3.2 World Wide Web (WWW)
 - 6.3.3 Website and URL
 - 6.3.4 Domain Name System (DNS)
 - 6.3.5 IP Address
 - 6.3.6 Internet Service Provider (ISP)
- 6.4 Application of Internet
- 6.5 Web Browsing Software
- 6.6 Searching on Internet
- 6.7 YouTube
- 6.8 Printing Web Pages
- 6.9 Net Etiquettes

7. Communication and Collaboration

- 7.1 E-mail

- 7.2 E-mail Structure
- 7.3 Using E-mail
- 7.4 Social Networking & Blogs
- 7.5 E-commerce
- 7.6 Cloud Storage
- 7.7 UMANG APP
- 7.8 Digital Locker
- 7.9 Cyber Security
- 7.10 SSL Certificate

8. Digital Financial Tools

- 8.1 Banking System
- 8.2 Digital Financial Tools
- 8.3 Internet Banking (NEFT, RTGS, IMPS)
- 8.4 Mobile Banking
- 8.5 Virtual Banking
- 8.6 Online Bill Payment
 - 8.6.1 Bharat Bill Pay

MODULE – II : Tally Financial Accounting

1. Basic Accounting Concepts

- 1.1 What is an accounting?
- 1.2 Attributes of Accounting
- 1.3 Methods of Accounting
- 1.4 Accounting Terminology
- 1.5 Books of Accounts
- 1.6 Classification of Accounts
- 1.7 Golden Rules of Accounting

2. Getting Start Tally

- 2.1 Working with TallyPrime
- 2.2 Tally Prime and Licensing
- 2.3 Home Screen
- 2.4 Setting Company Features
- 2.5 Setting TallyPrime
- 2.6 Using TallyPrime

3. Working with Company

- 3.1 Create a new Company
- 3.2 Company Directory
- 3.3 Set/Remove Security Settings
- 3.4 Using TallyVault

4. Accounts Master

- 4.1 Accounts Group
- 4.2 Group Created by Tally
- 4.3 Create a New Group
- 4.4 Ledger
- 4.5 Coping Ledgers

5. Voucher Types

- 5.1 Voucher Types in TallyPrime
- 5.2 Components of a Voucher Type
- 5.3 Create a New Voucher
- 5.4 Voucher Class
- 5.5 Create Voucher Class

6. Voucher Entry

- 6.1 Accounting Voucher
 - 6.1.1 Contra Voucher
 - 6.1.2 Payment Voucher
 - 6.1.3 Receipt Voucher
 - 6.1.4 Journal Voucher
 - 6.1.5 Sales Voucher
 - 6.1.6 Purchase Voucher
 - 6.1.7 Credit Note Voucher
 - 6.1.8 Debit Note Voucher
- 6.2 Single Voucher Entry Mode
 - 6.2.1 Contra Voucher
 - 6.2.2 Receipt Voucher
 - 6.2.3 Payment Voucher
- 6.3 Non-Accounting Voucher
 - 6.3.1 Optional Voucher
 - 6.3.2 Post Dated Voucher
 - 6.3.3 Memorandum Voucher
 - 6.3.4 Reversing Journal Voucher

7. Inventory Management

- 7.1 Inventory in TallyPrime
- 7.2 Activate of Inventory in Tally
- 7.3 Stock Group
- 7.4 Stock Category
- 7.5 Stock Item
- 7.6 Units of Measure
- 7.7 Godown

8. Purchase and Sales

- 8.1 Purchase Process
- 8.2 Sales Process
- 8.3 Orders
 - 8.3.1 Record a Purchase Order
 - 8.3.2 Record a Sales Order
- 8.4 Challan
 - 8.4.1 Receipt Note
 - 8.4.2 Delivery Note Challan
 - 8.4.3 Rejection Out Challan
 - 8.4.4 Rejection In Challan
 - 8.4.5 Material Out Voucher
 - 8.4.6 Material In Voucher
- 8.5 Stock Voucher
 - 8.5.1 Physical Stock Voucher
 - 8.5.2 Stock Journal Voucher
- 8.6 Invoice
 - 8.6.1 Recording a Sales Invoice
 - 8.6.2 Record a Service Invoice
 - 8.6.3 Use Invoice with Actual & Billed Qty
 - 8.6.4 Linking Invoice with Challan
 - 8.6.5 Linking Invoice with Orders
 - 8.6.6 Use Credit Note for Sales Returns
- 8.7 Record a Purchase Invoice

9. Reports

- 9.1 Real-Time Reports
- 9.2 Displaying Reports
- 9.3 Printing a Report
- 9.4 Balance Sheet

- 9.5 Profit and Loss Account
- 9.6 Trial Balance
- 9.7 Day Book
- 9.8 Ratio Analysis
- 9.9 Cash/Bank Book
- 9.10 Cash Flow
- 9.11 Fund Flow
- 9.12 Stock Summary

10. Data Management

- 10.1 Backup
- 10.2 Restore
- 10.3 Data Export
- 10.4 Import Data
- 10.5 Split Company Data
- 10.6 Repair Company Data
- 10.7 Moving to the Next Financial Year

11. Security Management

- 11.1 Security Control
- 11.2 Activate Security Control
 - 11.2.1 Remove Security Control
 - 11.2.2 Change Username and Password
- 11.3 User and Password
 - 11.3.1 Change User's Username
 - 11.3.2 Change User's Password
 - 11.3.3 Remove User
- 11.4 User Roles or Security Levels
 - 11.4.1 Create New Security Level
- 11.5 Setting TallyVault for Company
- 11.6 Tally Audit
 - 11.6.1 Enable Tally Audit
 - 11.6.2 Audit of Masters
 - 11.6.3 Audit of Voucher
 - 11.6.4 Audit of User

12. Multi-Currency

- 12.1 Multi Currency
- 12.2 Base Currency for the Company

- 12.3 Create New Currency
 - 12.3.1 Alter a Currency
 - 12.3.2 Delete a Currency
- 12.4 Define Rates of Exchange
- 12.5 Record Multi-Currency
- 12.6 Forex Gain/Loss Adjustments
- 12.7 Foreign Currency Outstanding

13. Interest Calculations

- 13.1 Activate Interest
- 13.2 Enabling Interest Calculation in Ledger Accounts
- 13.3 Types of Interest Calculation
- 13.4 Enabling Interest Calculation on Bank Ledger Account
- 13.5 Interest Calculation in Voucher
- 13.6 Interest Calculation Report
- 13.7 Create Voucher Class for Interest Calculation

14 Advance Features

- 14.1 Bill-wise Details
- 14.2 Batch-wise Details
- 14.3 Credit Limit
- 14.4 Price List
- 14.5 Point of Sales
- 14.6 Manage Buying and Selling Prices
- 14.7 Cost Centres
- 14.8 Cost Category
- 14.9 Bill of Materials

15. Goods and Service Tax

- 15.1 Concepts of GST
- 15.2 New Compliances under GST
- 15.3 Enable GST in Tally
- 15.4 Creating Stock Item
- 15.5 Creating Sales Ledger
 - 15.5.1 Create Common Sale Ledger
 - 15.5.2 Creating Service Ledger
- 15.6 Creating Purchase Ledger
- 15.7 Create Party Ledger
- 15.8 Creating Income & Expenses Ledger

- 15.9 Creating GST Ledgers
- 15.10 Recording Purchase for GST
 - 15.10.1 Record Local Purchase
 - 15.10.2 Record Interstate Purchase
 - 15.10.3 Purchases on Nil Rated
 - 15.10.4 Purchases on Exempt
 - 15.10.5 Deemed Exports
 - 15.10.6 Purchases from SEZ
 - 15.10.7 Purchase Return in GST
- 15.11 Recording Sales for GST
 - 15.11.1 Record Local Sales
 - 15.11.2 Record Interstate Sales
 - 15.11.3 Sales of Service
 - 15.11.4 Sales of Composite Supply
 - 15.11.5 Sales of Items with Cess
 - 15.11.6 Sales on Nil Rated
 - 15.11.7 Sales of Exempted Items
 - 15.11.8 Sales of Stock Items with Slab-wise Tax Rates
 - 15.11.9 Sales to Embassy or UN Body
 - 15.11.10 Sales SEZ
 - 15.11.11 Sales to Deemed Exports
 - 15.11.12 Cash Sale
 - 15.11.13 Sales Return in GST
- 15.12 Import Goods under GST
- 15.13 Recording Export Sales in GST
- 15.14 Purchases from Unregistered Dealers
- 15.15 Payment of GST
- 15.16 GST Reports
 - 15.16.1 GSTR-1
 - 15.16.2 GSTR-2
 - 15.16.3 GSTR-3B
 - 15.16.4 GST Annual Computation

16. Tax Deducted at Sources-TDS

- 16.1 Introduction of TDS
- 16.2 Enable TDS in Tally
- 16.3 Nature of payment
- 16.4 TDS Master
 - 16.4.1 Create TDS Ledger

- 16.4.2 Create Expense Ledger
- 16.4.3 Create Party Ledger
- 16.4.4 Create Fixed Asset Ledger
- 16.4.5 Create Stock Item
- 16.5 Record TDS Transactions
 - 16.5.1 Booking of Expense and Deducting TDS
 - 16.5.2 Booking of Expense and Deducting TDS Later
 - 16.5.3 TDS Deduct at Lower Rate
 - 16.5.4 TDS Deduct at Zero Rate
 - 16.5.5 TDS Deduct at Double Rate
 - 16.5.6 TDS Deduction without PAN details
 - 16.5.7 TDS Deduction on Purchases of Software
 - 16.5.8 Reversal of TDS on Purchase
 - 16.5.9 TDS on Advance Payment
- 16.6 Payment of TDS
- 16.7 TDS Reports
 - 16.7.1 Form 26Q
 - 16.7.2 Form 27Q
 - 16.7.3 Ledgers without PAN
 - 16.7.4 Challan Reconciliation

MODULE – III: Web Design and Publishing

1. Introduction to Web Designing

- 1.1 Introduction of Internet
- 1.2 World Wide Web (WWW)
 - 1.2.1 Hypertext System
 - 1.2.2 Graphical User interface
 - 1.2.3 Interactivity
 - 1.2.4 Information Organization
- 1.3 What is Website?
 - 1.3.1 Domain Name System (DNS)
 - 1.3.2 How the website Work?
- 1.4 Web Pages
- 1.5 Front-end and Back-end
- 1.6 Client and Server Scripting Language
- 1.7 Responsive Web Designing
- 1.8 Types of Website

2. Editors

- 2.1 Introduction
- 2.2 Notepad
 - 2.2.1 File Menu
 - 2.2.2 Edit Menu
 - 2.2.3 Format Menu
- 2.3 Notepad++
 - 2.3.1 Downloading Notepad++
 - 2.3.2 Installing Notepad++
 - 2.3.3 Working with text effects
 - 2.3.4 Editing the text effects
 - 2.3.5 Searching and Replace
- 2.4 Sublime Text editor
 - 2.4.1 Downloading the Sublime
 - 2.4.2 Installing Sublime Text 3
 - 2.4.3 Working with files
 - 2.4.4 Editing the text
 - 2.4.5 Searching and Replace
 - 2.4.6 Writing Program code
 - 2.4.7 Multi Line Editing

3. HTML Basics

- 3.1 Introduction
- 3.2 Creating and Running HTML Code
- 3.3 Elements, Tags and Attributes
- 3.4 Basic HTML Tags
 - 3.4.1 HTML Section
 - 3.4.2 Head Section
 - 3.4.3 Title Section
 - 3.4.4 Body Section
- 3.5 Formatting Tags
- 3.6 Body Tag Elements
- 3.7 Heading Elements
- 3.8 Font Tags
- 3.9 <Div> Elements
- 3.10 Pre-formatted Elements
- 3.11 Comment in HTML
- 3.12 Anchor Element
- 3.13 Create List

- 3.13.1 Ordered List Element
- 3.13.2 Unordered List Element
- 3.13.3 Definition List Element
- 3.13.4 Nested Lists
- 3.14 Creating Tables in HTML
- 3.15 FRAME and FRAMESET
- 3.16 HTML Form's

4. Cascading Style Sheet (CSS)

- 4.1 Introduction
- 4.2 Types of Cascading Style Sheet
 - 4.2.1 Inline CSS
 - 4.2.2 Internal or Embedded CSS
 - 4.2.3 External CSS
- 4.3 Priorities of CSS
- 4.4 CSS Syntax
- 4.5 CSS Selectors
- 4.6 CSS Properties
- 4.7 CSS List
- 4.8 CSS Table
- 4.9 CSS Menu Design
 - 4.9.1 Vertical Navigation bar
 - 4.9.2 Horizontal Navigation bar
- 4.10 CSS Image Gallery

5. CSS Framework

- 5.1 Introduction to W3.CSS
- 5.2 W3.CSS Website Template
- 5.3 W3.CSS Color
 - 5.3.1 Coloring HTML Element
 - 5.3.2 Hover Colors
- 5.4 W3.CSS Containers
- 5.5 w3-css Panels
- 5.6 W3.CSS Borders
- 5.7 W3.CSS Font
- 5.8 W3.CSS Text
- 5.9 W3.CSS Table
- 5.10 W3.CSS List
- 5.11 W3.CSS Image

6. JavaScript

- 6.1 Introduction to JavaScript
- 6.2 Uses of JavaScript
- 6.3 Program Structure
- 6.4 Operators in Java Script
- 6.5 Variable
- 6.6 JavaScript Statement, Code and Block
- 6.7 Reserved Words
- 6.8 Data Types
- 6.9 Java Script Comment
 - 6.9.1 Single Line Comment
 - 6.9.2 Multi line Comment
- 6.10 Java Script Popup Box
- 6.11 Conditional Statement
 - 6.11.1 'if' Statement
 - 6.11.2 'if-else' Statement
 - 6.11.3 'Nested if' Statement
 - 6.11.4 Complex Condition
- 6.12 Switch Statement
- 6.13 Functions
- 6.14 JavaScript Event
- 6.15 Event Handling and Form Validation

7. Angular JS

- 7.1 What is Angular JS?
- 7.2 Angular JS Directives
- 7.3 Angular JS Expressions
- 7.4 Angular JS Controller
- 7.5 Angular JS Module
- 7.6 Angular JS Scope
- 7.7 Angular JS Form
- 7.8 Angular JS Tables
- 7.9 Angular JS Filter
- 7.10 Form Validation in Angular JS

8. Photo Editor

- 8.1 Features of Photo Editing
- 8.2 Introduction to Photoshop
- 8.3 Photo Editing in Photoshop

- 8.4 Common Photo Formats and sizes
- 8.5 Color Modes
- 8.6 Getting Start Photoshop
- 8.7 Palettes
- 8.8 Photoshop Tools
 - 8.8.1 Move Tool
 - 8.8.2 Rectangular Marquee Tool
 - 8.8.3 Lasso Selection Tool
 - 8.8.4 Quick Selection Tool
 - 8.8.5 Crop Tool
 - 8.8.6 Spot healing brush Tool
 - 8.8.7 Brush Tool
 - 8.8.8 Erase Tool
 - 8.8.9 Gradient Tool
 - 8.8.10 Blur Tool
 - 8.8.11 Type Tool
 - 8.8.12 Shape Tool
 - 8.8.13 Zoom Tool
- 8.9 Transform
- 8.10 Color Mode
- 8.11 Brightness/Contrast
- 8.12 Layers
- 8.13 Filter

9. Web Publishing and Browsing

- 9.1 Web Publishing
- 9.2 SGML
- 9.3 Web Hosting
- 9.4 HTML
- 9.5 Common Gateway Interface (CGI)
- 9.6 Document Interchange Standard
- 9.7 Components of Web Publishing
- 9.8 Document Management
- 9.9 Web page design consideration and principles
- 9.10 Search and Meta Search Engines
- 9.11 World Wide Web (WWW)
- 9.12 Browser
- 9.13 Hyper Text Transfer Protocol (HTTP)
- 9.14 Publishing Tools

MODULE – IV: Programming with Python

1. Introduction to Programming

- 1.1 Basic Model of Computation
 - 1.1.1 Recording
 - 1.1.2 Classification
 - 1.1.3 Sorting
 - 1.1.4 Calculation
 - 1.1.5 Summarization
 - 1.1.6 Reporting
- 1.2 Programming Languages
 - 1.2.1 Machine Language
 - 1.2.2 Assembly Language
 - 1.2.3 High Level Language
 - 1.2.4 Fourth Generation Language
 - 1.2.5 Fifth Generation Language
- 1.3 Steps of Programming
 - 1.3.1 Program Analysis
 - 1.3.2 Program Designing
 - 1.3.3 Program Coding
 - 1.3.4 Program Debugging
 - 1.3.5 Program Documentation
 - 1.3.6 Program Maintenance
- 1.4 Compilation
- 1.5 Testing and Debugging
- 1.6 Documentation
- 1.7 Algorithm

2. Problem Solving Through Flowchart

- 2.1 Introduction
- 2.2 Standard Boxes or Diagram
- 2.3 Examples

3. Python Fundamentals

- 3.1 Introduction
- 3.2 Working with Python
- 3.3 Creating a Module/Program file
- 3.4 Executing Python Program

- 3.5 Python Tokens
- 3.6 print() statement
- 3.7 input ()

4. Control Statement

- 4.1 Introduction
- 4.2 Conditional Statements
 - 4.2.1 'if' statement
 - 4.2.2 if-else statement
 - 4.2.3 if-elif statement
 - 4.2.4 Nested if Statement
 - 4.2.5 Complex Conditions
 - 4.2.6 Stored Conditions
- 4.3 Looping Statement
 - 4.3.1 while() loop
 - 4.3.2 for() loop
 - 4.3.3 Jump statements
 - 4.3.4 Loop-else Statement
 - 4.3.5 Nested Loops
- 4.4 'pass' statement
- 4.5 Assert Statement

5. Sequence Data Type: LIST

- 5.1 Introduction
- 5.2 Creating a List
- 5.3 Accessing the List
- 5.4 List Operations
 - 5.4.1 Combining the Lists
 - 5.4.2 Replicating the List
 - 5.4.3 Slicing the List
 - 5.4.4 Adding elements to List
 - 5.4.5 Updating the Element
 - 5.4.6 Deleting Elements
 - 5.4.7 Copying the List
- 5.5 Functions and Methods of List

6. Sequence Data Type: TUPLE

- 6.1 Introduction
- 6.2 Creating a Tuple

- 6.3 Accessing the Tuple
 - 6.3.1 Accessing whole Tuple
 - 6.3.2 Accessing individual element
 - 6.3.3 Traversing the Tuple
- 6.4 Tuple Operations
 - 6.4.1 Combining the Tuples
 - 6.4.2 Replicating the Tuple
 - 6.4.3 Slicing the Tuple
 - 6.4.4 Unpacking the Tuple
- 6.5 Functions and Methods of Tuple

7. Sequence Data Type: Dictionary

- 7.1 Introduction
- 7.2 Creating a Dictionary
- 7.3 Accessing the Dictionary
 - 7.3.1 Accessing whole Dictionary
 - 7.3.2 Accessing individual element
 - 7.3.3 Traversing the Dictionary
- 7.4 Dictionary Operations
 - 7.4.1 Adding elements to Dictionary
 - 7.4.2 Creating Dictionary using keys and values separately
 - 7.4.3 Creating Dictionary using key: value pair as List
 - 7.4.4 Updating Dictionary element
 - 7.4.5 Deleting Dictionary element
 - 7.4.6 Checking existing of key
- 7.5 Nested Dictionary
- 7.6 Dictionary Functions and Methods

8. Library Functions

- 8.1 Introduction
- 8.2 Importing Module
- 8.3 Math module
- 8.4 Random module
- 8.5 String Manipulations
 - 8.5.1 String Operators
 - 8.5.2 String Slice
 - 8.5.3 String Functions
 - 8.5.4 String Methods
- 8.6 Date and Time Functions

9. User Defined Functions

- 9.1 Introduction
- 9.2 Defining a function
- 9.3 Invoking a function
- 9.4 Function Arguments
 - 9.4.1 Positional Arguments
 - 9.4.2 Default Arguments
 - 9.4.3 Named Arguments
- 9.5 Type of Functions
 - 9.5.1 Function with Input and Output
 - 9.5.2 Function with Input and without Output
 - 9.5.3 Function without Input and with Output
 - 9.5.4 Function without Input-Output
- 9.6 Scope of Variables
- 9.7 RECURSION

10. File Processing

- 10.1 Introduction
- 10.2 Text File Processing
- 10.3 Binary File Processing
 - 10.3.1 'pickle' module
 - 10.3.2 open()
 - 10.3.3 close()
 - 10.3.4 dump()
 - 10.3.5 load()
 - 10.3.6 Checking End of File
 - 10.3.7 Deletion of records
- 10.4 Object Oriented File Processing

11. Scope and Module

- 11.1 Scope Rule
 - 11.1.1 Global Scope
 - 11.1.2 Local Scope
 - 11.1.3 Accessibility of Global and Local variable
 - 11.1.4 LEGB Rule
 - 11.1.5 Local and Global variable with same name
- 11.2 Module
 - 11.2.1 Creating Module
 - 11.2.2 Importing Module

11.2.3 Calling Module Objects

11.2.4 Module commands

12. Numpy Array

12.1 Introduction

12.2 Creating NumPy Array

12.3 Dimensions of Array

12.4 Shape of Array

12.5 Array Indexes

12.6 Array Slicing

12.7 Array Functions

12.7.1 reshape()

12.7.2 may_share_memory()

12.7.3 ones()

12.7.4 zeros()

12.7.5 ones_like()

12.7.6 zeros_like()

12.7.7 empty()

12.7.8 copy()

12.8 Identity Array

12.8.1 identity()

12.8.2 eye()