



# PROGRAM GUIDE

## Diploma in Computer Application (DCA)

# DIPLOMA IN COMPUTER APPLICATION (DCA)

Duration: 12 Months (1 Year) Eligibility: 12<sup>th</sup> Pass

COURSE STRUCTURE OF DCA SEMESTER Ist												
Subject Details			Main Examinations				Sessionals ***		Credit Distribution			Allotted Credits
Subject Code	Subject Name	Total Marks	Major		Minor		Max Marks	Min Marks	L	T	P	Subject wise Distribution
			Max Marks	Min Marks	Max Marks	Min Marks						
<b>Theory Group</b>												
2TDCA-101	Information Technology Tools and Network Basics	100	50	17	20	07	30	12	2	1	-	3
2TDCA-102	Windows and MS Office	100	50	17	20	07	30	12	2	1	-	3
2TDCA-103	DataBase Concepts and Introduction to SQL	100	50	17	20	07	30	12	2	1	-	3
2TDCA-104	Objects Oriented Programming With C++	100	50	17	20	07	30	12	2	1	-	3
2TDCA-105	Communication Skills & Personality Development	100	50	17	20	07	30	12	2	1	-	3
<b>Practical Group</b>			<b>Term End Practical Exam</b>				<b>Lab Performance</b>					
2TDCA-101	Information Technology Tools and Network Basics	50	25		08		25	08	-	-	3	3
2TDCA-102	Windows and MS Office	50	25		08		25	08	-	-	1	1
2TDCA-104	Objects Oriented Programming With C++	50	25		08		25	08	-	-	1	1
<b>Grand Total</b>		<b>650</b>										<b>20</b>

**Minimum Passing Marks are equivalent to Grade D**

**Major- Term End Theory Exam/ Practical Exam**

**Minor- Pre University Test**

**Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%**

**L- Lectures T- Tutorials P- Practical**

# DIPLOMA IN COMPUTER APPLICATION

Duration: 12 Months (1 Year) Eligibility: 12<sup>th</sup> Pass

## COURSE STRUCTURE OF DCA SEMESTER IIInd

Subject Details		Main Examinations					Sessionals ***		Credit Distribution			Allotted Credits
Subject Code	Subject Name	Total Marks	Major		Minor		Max Marks	Min Marks	L	T	P	Subject wise Distribution
			Max Marks	Min Marks	Max Marks	Min Marks						
<b>Theory Group</b>												
2TDCA-201	Introduction to Internet and Web Technology	100	50	20	20	07	30	12	2	1	-	3
2TDCA-202	Introduction to Financial Accounting with Tally	100	50	20	20	07	30	12	2	1	-	3
2TDCA-203	Programming and Problem Solving through Python	100	50	20	20	07	30	12	2	1	-	3
2TDCA-204	Introduction to Cyber Security	100	50	20	20	07	30	12	2	1	-	3
<b>Practical Group</b>			<b>Term End Practical Exam</b>				<b>Lab Performance</b>					
2TDCA-201	Introduction to Internet and Web Technology	50	25		08		25	08	-	-	1	1
2TDCA-202	Introduction to Financial Accounting with Tally	50	25		08		25	08	-	-	1	1
2TDCA-203	Programming and Problem Solving through Python	50	25		08		25	08	-	-	1	1
2TDCA-204	Introduction to Cyber Security	50	25		08		25	08	-	-	1	1
2TDCA-205	Project Report	100	50		17		50	17	-	-	4	4
<b>Grand Total</b>		<b>700</b>										<b>20</b>

**Minimum Passing Marks are equivalent to Grade D**

**Major- Term End Theory Exam/ Practical Exam**

**Minor- Pre University Test**

**Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%**

**L- Lectures T- Tutorials P- Practical**

# DETAILED SYLLABUS

## Semester I

### 2TDCA-101 : Information Technology Tools and Network Basics

#### Unit I :

- Introduction to Computer: Computer and Latest IT gadgets, Evolution of Computers & its applications, IT gadgets and their applications, Basics of Hardware and Software, Central Processing Unit, Input devices, Output devices, Computer Memory & storage, Application Software, Systems Software, Utility Software, Open source and Proprietary Software, Mobile Apps.
- Introduction to Operating System: Operating System, Basics of Operating System, Operating Systems for Desktop and Laptop, Operating Systems for Mobile Phone and Tablets, User Interface for Desktop and Laptop, Task Bar, Icons & shortcuts, running an application, Operating System simple setting, using mouse and changing its properties, changing system date and time, changing display properties, to add or remove Program and its features, adding, removing & sharing Printers, File and Folder management, types of file extensions.

Unit II : Word Processing - Word Processing Basics, Opening Word Processing Package, Title Bar, Menu Bar, Toolbars & Sidebar, Creating a New Document, Opening and Closing Documents, Opening Documents, Save and Save As, Closing Document, Using The Help, Page Setup, Page Layout, Borders, Watermark, Print Preview, Printing of Documents, PDF file and Saving a Document as PDF file, Text Creation and manipulation, Document Creation, Editing Text, Text Selection, Cut, Copy and Paste, Font, Color, Style and Size selection, Alignment of Text, Undo & Redo, AutoCorrect, Spelling & Grammar, Find and Replace, Formatting the Text, Creating and using user defined Styles, Paragraph Indentation, Bullets and Numbering, Change case, Header & Footer, Table Manipulation, Insert & Draw Table, Changing cell width and height, Alignment of Text in cell, Delete / Insertion of Row, Column and Merging & Splitting of Cells, Border and Shading, Mail Merge, Table of Contents, Indexes, Adding Comments, Tracking changes, Macros.

Unit III : Spreadsheet - Elements of SpreadSheet, Creating of SpreadSheet, Concept of Cell Address [Row and Column] and selecting a Cell, Entering Data [text, number, date] in Cells, Page Setup, Printing of Sheet, Saving Spreadsheet, Opening and Closing, Manipulation of Cells & Sheet, Modifying / Editing Cell Content , Formatting Cell (Font, Alignment, Style ), Cut, Copy, Paste & Paste Special, Changing Cell Height and Width, Inserting and Deleting Rows, Column, AutoFill, Sorting & Filtering, Freezing panes, Formulas, Functions and Charts, Using Formulas for Numbers (Addition, Subtraction, Multiplication & Division), AutoSum, Functions (Sum, Count, MAX, MIN, AVERAGE), Sort, Filter, Advanced Filter, Database Functions ( DSUM, DMIN, DMAX, DCOUNT, DCOUNTA), What-if Analysis, Pivot table Charts (Bar, Column, Pie, Line), Data Validation.

Unit IV : Presentation - Creation of Presentation, Creating a Presentation Using a Template, Creating a Blank Presentation, Inserting & Editing Text on Slides, Inserting and Deleting Slides in a Presentation, Saving a Presentation, Manipulating Slides, Inserting Table ,

Adding Pictures, Inserting Other Objects, Resizing and Scaling an Object, Creating & using Master Slide, Presentation of Slides , Choosing a Set Up for Presentation, Running a Slide Show, Transition and Slide Timings, Automating a Slide Show, Providing Aesthetics to Slides & Printing, Enhancing Text Presentation, Working with Color and Line Style, Adding Movie and Sound, Adding Headers, Footers and Notes, Printing Slides and Handouts.

Unit V : Introduction to Internet and WWW, E-mail, Social Networking and e-Governance Services - Basic of Computer Networks, Local Area Network (LAN), Wide Area Network (WAN), Network Topology , Internet, Concept of Internet & WWW, Applications of Internet, Website Address and URL, Introduction to IP Address, ISP and Role of ISP, Internet Protocol, Modes of Connecting Internet (HotSpot, Wifi, LAN Cable, BroadBand, USB Tethering), Identifying and uses of IP/MAC/IMEI of various devices, Popular Web Browsers (Internet Explorer/Edge, Chrome, Mozilla Firefox, Opera etc.), Exploring the Internet , Surfing the web, Popular Search Engines, Searching on Internet, Downloading Web Pages, Printing Web Pages.

Unit VI : Digital Financial Tools and Applications, Overview of Future Skills & Cyber Security - Digital Financial Tools, Understanding OTP [One Time Password]and QR [Quick Response] Code, UPI [Unified Payment Interface], AEPS [Aadhaar Enabled Payment System], USSD[Unstructured Supplementary Service Data], Card [Credit / Debit], eWallet, PoS [Point of Sale], Internet Banking, National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Immediate Payment Service (IMPS), Online Bill Payment

## 2TDCA-102 : Windows and MS Office

### Unit I :

**Introduction to Windows 10** - Introduction, Overview, Installation, Getting Started, GUI Basics, Navigation, Start Menu, Taskbar, Tablet Mode, File Explorer, Cortana, Notifications, Quick Actions, Cloud, Universal Apps

**Working with Windows 10** - Multiple Desktops, Users Management, Security, Parental Control, Applications, Web Browsing, Networking, Virtualization, Remote Access, Backup & Recovery, Project Spartan, Apps Management, Email Management, Keyboard Shortcuts, System Tray, Media Management, Favourite Settings, Shortcuts, Phones.

**Unit II : Microsoft Office Introduction** - Introduction to MS Office Suite, Understanding the different applications in the suite, Versions of Microsoft Office, Understanding the Interface, Customizing the Quick Access toolbar, Adding and removing commands, moving the toolbar, creating custom commands, using the Ribbon Interface, tabs and groups, customizing the ribbon, keyboard shortcuts

### Unit III :

**Getting Started Word Basic (2019)** - Introduction of word, understanding OneDrive, creating and opening documents, saving and sharing documents, text basics, formatting text, using find and replace, indents and tabs, line and paragraph spacing, lists, links, page layout, printing documents, breaks, columns, headers and footers, page numbers

**Working with Object Word (2019)** - Pictures and text wrapping, formatting pictures, shapes, text boxes, aligning, ordering, and grouping objects, list and tables, creating lists, creating tables, formatting tables, charts, checking spelling and grammar, track changes and comments, inspecting and protecting documents, SmartArt graphics, inserting and formatting

images, wrapping text around images, applying and modifying styles, mail merge, new features in office 2019.

#### **Unit IV :**

**Getting Started with Excel (2019)** - Introduction, Understanding OneDrive, understanding spreadsheets, the Excel interface, the Excel ribbon, Creating and Opening Workbooks, Saving and opening files, Working with Cells and Sheets, Cell Basics, Modifying Columns, Formatting Cells, Understanding Number Formats, Working with Multiple Worksheets, Grouping and ungrouping worksheets, Using Find & Replace, Checking Spelling, Page Layout and Printing, Formulas and Functions: Intro to Formulas, Creating More Complex Formulas, Relative and Absolute Cell References, Functions,

**Working with Data with Excel (2019)** - Basic Tips for Working with Data, Freezing Panes and View Options, Sorting Data, Filtering Data, Advanced filter option, Groups and Subtotals, Tables, Charts and graphs, Conditional Formatting, Doing More with Excel: Comments and Co-authoring, Inspecting and Protecting Workbooks, Intro to PivotTables, Doing More with PivotTables, Pivot charts, What-if Analysis, Extras: New Features in Office 2019, What are Reference Styles?, Office Intelligent Services.

#### **Unit V :**

**Getting Started with Power Point (2019)** - PowerPoint Basics: Understanding OneDrive, Creating and Opening Presentations, Saving Presentations, Working with Slides: Slide Basics, Text Basics, Applying Themes, slide layout, slide background, Applying Transitions, Managing Slides, Using Find & Replace, Printing, Presenting Your Slide Show.

**Text and Objects with Power Point (2019)** - Lists, Indents and Line Spacing, Inserting Pictures, Formatting Pictures, Shapes, Aligning, Ordering, and Grouping Objects, Animating Text and Objects, More Objects: Inserting Videos, Inserting Audio, formatting multimedia, animating objects, Tables, Charts, SmartArt Graphics, Review and Collaborating: Checking Spelling and Grammar, Reviewing Presentations, Inspecting and Protecting Presentations, Customizing Your Presentation: Modifying Themes, Slide Master View, Links, Action Buttons, Rehearsing and Recording Your Presentation, Sharing Your Presentation Online, What is Office 365?, New features in office 2019, Office Intelligence Services.

## **2TDCA-103 : DataBase Concepts and Introduction to SQL**

### **Unit I : Introduction to DBMS**

- What is database?
- Types of database systems
- Advantages of using a DBMS
- Different types of database models

### **Unit II : An Architecture of the Database system**

- Three level of Architecture
- Logical, Physical, conceptual new
- Logical data independence

### **Unit III : Relational Data Model**

- What is the relational data model?
- Concepts of tables, attributes, tuples and keys

- Primary and foreign keys
- Constraints
- ER diagrams
- Entry-Relationship Diagrams (ERDs)

#### **Unit IV : Normalization and Database Design**

- What is normalization?
- Advantages of normalization
- First Normal Form (1NF)
- Second Normal Form (2NF)
- Third Normal Form (3NF)
- Denormalization
- Database design process

#### **Unit V :SQL Basics**

- Introduction to SQL
- Data types
- Basic SQL syntax and commands
- Creating tables
- Inserting data into tables
- Retrieving data from tables using SELECT statement
- Filtering data using WHERE clause
- Sorting data using ORDER By clause

#### **Unit VI : Advanced SQL**

- Join (Inner Join, Right Join, Full Outer Join)
- Aggregating data using GROUP By clause
- Filtering grouped data using HAVING clause
- Subqueries
- Views
- Indexes

#### **Unit VII : Database Administration**

- Introduction to database administration
- Backup and recovery
- Performance tuning
- Security and access control
- Database maintenance
- Selecting the right database

## **2TDCA-104 : Objects Oriented Programming With C++**

### **Unit I :**

**Overview of C++** - Overview of C++, Software crisis, Object oriented programming paradigm, Basic concepts of OOP, Advantages/Benefits of OOP, Usage/applications of OOP  
**C++ Environment** - Program development environment, The language and the C++ language standards, Introduction to various C++ compilers, The C++ standard library, Prototype of main () function, i/o operator, manipulator, comments, data types

**Creating and Compiling C++ Programs** - TURBO C++ IDE, Creating, compiling and running a C++ program using idea and through command line, Elements of C++ Language, Structure of a C++ program, C++ tokens, Type conversion in expressions.

**Decision Making and Branching** - Introduction, Sequential statements, Mathematical Functions, Branching statements, looping Statements, Nested loops, Programming examples.

## **Unit II :**

**Arrays and Functions**- Arrays, The meaning of an array, Single-dimensional arrays, Two-dimensional arrays (Multi-dimensional arrays), User Defined Functions, Elements of user-defined functions, Return values and their types, Function calls, Categories of functions, Passing parameters to functions, Recursion, Command Line Arguments, Storage Class Specifiers.

**Classes and Objects** - Classes, Structures and classes, Unions and classes, Friend function, Friend classes, Inline function, Scope resolution operator, Static class members, Static data members, Static member functions, Passing object to functions, Returning objects, Object assignment

**Array, Pointers, References and the Dynamic Allocation Operators** - Array of objects, Pointer to object, Type checking in C++, The this pointer, Pointer to Derived Types, Pointer to class members, References, C++'s Dynamic Allocation Operators.

**Constructors and Destructors** - Introduction, Constructors, Default Constructor, Parameterized constructors, Copy Constructors, Multiple Constructors in a class, Constructors with default arguments, Default Arguments, Special Characteristics of Constructor functions, Destructors.

**Unit III : Polymorphism** – Introduction to polymorphism, Types of polymorphism, Function overloading, Overloading Constructor Function, Finding the address of an overloaded function, Operator Overloading, Creating a Member Operator Function, Creating Prefix and Postfix forms of the increment (++) and decrement (– –) operators (Overloading Unary Operator), Overloading the Shorthand Operators (i.e. +=, == etc), Operator Overloading Restriction (Rules), Operator Overloading using friend function, Overloading new and delete operator, Overloading some special operators, Overloading [ ]

(Subscripting) operator, Overloading() (Function Call) operator, Overloading Binary Arithmetic operators, Concatenating String, Overloading Comma ( , ) operator, Overloading the I/O operators.

**Unit IV :** Base class Access control, Inheritance & protected members, Protected base class inheritance, Inheriting multiple base classes, Constructors, destructors & Inheritance, When constructor & destructor function are executed, Passing parameters to base class constructors, Granting access, Virtual base classes.

Virtual function, Pure Virtual functions, early Vs. late binding.

**Unit V :** The C++ I/O System Basics - The C++ I/O System basics, C++ predefined streams, Formatting using the ios members, Clearing Format Flags, An Overloaded form of setf( ), Examining the Formatted Flags, Using width( ), Using precision( ), Using fill( ), Using Manipulators to format I/O, Creating your own Manipulators



## 2TDCA-105 : Communication Skills and Personality Development

### Unit I :

English Language - Listening, Speech, Pronunciation, Reading, Spelling, Writing *Right*

Nouns : Countable and Uncountable, Pronouns : Personal, Relative and Others, Articles

The Parts of Speech, The Prepositions, Clauses : Coordinate, Subordinate, Relative Adverbs, Adjectives and Adjective Phrases, Verb.

### Unit II :

The Model Auxiliaries, Adverb, Adverb Phrases Comparisons and Intensification, Linking Devices, Subject Verb Agreement, Tenses, Common Errors, Word Building, Vocabulary

Developing Ability of Question and Answer, Body Language and Its Use in Speaking, Group Discussions, Interview Skills.

### Unit III :

Composition - Making a Technical Report, E-Mails and Text Messages Composing, Letter Writing, Paragraph Writing, E-mail Writing, Writing Resume, Writing a Cover Letter

**Personality development:** Soft Skills Development, Body Language, Behavioral and Symptomatic Soft Skills, Etiquette and Manners, Positive Thinking, Motivation, Goal setting, Team building, Self Confidence, Leadership Skills, Time Management.

### Unit IV :

Introduction to Personality a) Basic of Personality b) Human growth and Behavior c) Theories in Personality d) Motivation

Communication skills and Personality Development a) Intra personal communication and Body Language b) Inter personal Communication and Relationships c) Leadership Skills d) Team Building and public speaking

### Unit V :

Techniques in Personality development I a) Self confidence b) Mnemonics c) Goal setting d) Time Management and effective planning

Techniques in Personality Development II a) Stress Management b) Meditation and concentration techniques c) Self hypnotism d) Self acceptance and self growth

# Semester II

## 2TDCA-201 : Introduction to Internet and Web Technology

**Unit I :** Introduction to Internet: Internet, growth of Internet, owners of the Internet, anatomy of Internet, ARPANET, and Internet history of the World Wide Web, basic Internet terminology, Net etiquette. Internet Applications – Commerce on the Internet, governance on the Internet, Impact of Internet on society – Crime on/through the Internet.

**Unit II :** Internet Network and Services on Internet (Definition and Functions): Network definition, Common terminologies: LAN, WAN, node, host, workstation, bandwidth, interoperability, network administrator, network security, network components: servers, clients, communication media, types of networks: peer to peer, client's server, addressing in Internet: DNS, domain name and their organization, understanding the Internet protocol address. Network topologies: Bus, star and ring, Ethernet, FDDI, ATM and Intranet. E-mail, WWW, Telnet, FTP, IRC and search engine.

**Unit III :** Electronic Mail: Email networks and servers, Email protocols –SMTP, POP3, IMAP4, MIME6, structure of an Email – Email address, Email header, body and attachments, Email clients: Netscape mail clients, Outlook Express, web based E-mail. Email encryption-address book, signature file.

**Unit IV :** HTML Programming Basics: HTML page structure, HTML text, HTML links, HTML document tables, HTML frames, HTML images, multimedia.

**Unit V :** Project on Browsing, sending emails, developing a simple website Using html, css, bootstrap.

## **2TDCA-202 : Introduction to Financial Accounting with Tally**

### **Unit I :**

Accounting, Meaning Of Accounting, Objectives Of Accounting, Important Terms, Accounting Equation, Rules Of Debit And Credit- Journal & Ledger, Journal, Ledger, Cash Book, Subsidiary Books, Financial Statement, Trading & P&L A/C, Balance-sheet, Inventory, Adjustment Entries, Bill Of Exchange

Installing Tally 9, Introduction, Tally 9.0 (Release 1.0), Major Enhancements In Tally 9, Minor Enhancements In Tally 9, Multilingual Business Accounting And Inventory Management Features, Performance And Implementation Features, Accounting And Inventory Control Features, Installing Tally 9.0, Application Directory,

Data Directory, Configuration Directory, Language Directory, Activating Tally, Activating Tally Gold For Multi User, Registering Tally, Validating Tally, Tally Data Migration Tool, Uninstalling Tally 9

### **Unit II :**

ABC of Company, Creation Of New Company Selection Of New Company Deletion Of Company Alteration Of Company Shut A Company Company Features, Features Of Company Accounting Features Inventory Features, , Statutory Features Tally Screen Components, Title Bar, Button Bar, Calculator, Working Are, Quitting, Gateway Of Tally, Current Status Area Configuration, General, Numeric Symbols, Accts/Inventory Info, Printing, Connectivity, Licensing, Shop, Quit Budget, Introduction, Budget, Creating Budget, Alter A Budget, Delete Budget, Display Budget/ Budget Variance, Scenarios Job Costing, Introduction, Enabling Or Configure Job Costing In Tally, Master Creation For Job Costing, Voucher Type And Voucher Class, Job Cost Reports

### **Unit III :**

Reports, Introduction Accounting Reports, Trial Balance, Balance Sheet, Profit & Loss, Cash Flow Statement, Fund Flow Statement, Ratio Analysis, Day Book, Cash/Bank Book Sales Register Purchase Register Outstanding Interest Cost Centers Job Work Analysis Statistics Inventory Reports

Accounts Groups & Ledgers, Introduction Accounts Group Multiple Group Creation Display Group Alter Group Multiple Ledgers Display Ledger Alter Ledger Voucher Types

Payroll Accounting, Introduction, To Activate Payroll In Tally 9, Payroll Menu, Display Pay Heads, Multiple Group Creation, Employee Creation, Salary Detail, Attendance, Attendance Type, Voucher Creation.

### **Unit IV :**

Export & Import, Introduction, Export, Import, ODBC Compliances. Cost Centre, Introduction Cost Centre, Creating Cost Centre, Display Cost Centre, Alter Cost Centre Cost Category, Create Cost Categories, , Display Cost Categories, Alter Cost Categories Voucher Entry Cost Centre Class, Creating Cost Centre, Invoice Entry Using Cost Centre Reports Related To Cost Centre

Foreign Currencies, Introduction Foreign Currency, Create Foreign Currency, Alter Foreign Currency, Display Foreign Currency, Exchange Rate Entry Voucher Entry Using Foreign Currency Voucher Entry through Forex Journal Voucher Class Reports Related To Foreign Currency

Interest, Introduction, Interest, Simple Mode, Interest On Outstanding Balances, Reports On Interest Calculated On Outstanding Balances, Advanced Parameter Mode, Interest Calculation Transaction By Transaction/Voucher Interest At Fixed Rate, Voucher Interest At Variable Rate, Statement Of Interest Due On Invoice, Interest Reports, Interest Voucher Class.

#### **Unit V :**

Printing, Introduction Cheque Printing, Multi Account Printing, Printing Options General, Purchase Printing, Sales Transaction, Receipt Voucher, Journal/Contra, Debit/Credit Note, Reminder Letter, Confirmation Statement Reports Printing Button Related

Bank Reconciliation, Introduction, Bank Reconciliation In Tally 9, Configuration Of Bank Reconciliation

Security Control, Introduction Security Levels Access Type

Backup & Restore, introduction, Group Company, Create a Group Company, Alter a Group Company, Tally Audit, Splitting Company Data

Inventory, Introduction Stock Group Stock Item Stock Categories Godowns Units Of Measures Rate Of Duty Inventory Vouchers Reorder Level Inventory Reports Inventory Info Inventory Books Statement Of Inventory Batch Wise Details Price List

## **2TDCA-203 : Programming and Problem Solving through Python**

### **Unit I : Introduction to Python**

- What is Python?
- Advantages of using python
- Installing python and PyCharm
- Writing and running your first Python program

### **Unit II : Basic concepts of Python**

- Variables and Data Types
- Operators
- Control Flow
- Loops
- Functions

### **Unit III : Data Structure in Python**

- Lists, Tuples, and Dictionaries
- Working with Lists and Tuples
- Working with Dictionaries
- List Comprehensions

### **Unit IV : File Handling in Python**

- Reading and Writing Text Files
- Working with CSV Files
- Working with JSON Files

### **Unit V : Object-Oriented Programming in Python**

- Classes and Objects
- Inheritance
- Polymorphism
- Encapsulation

## **Unit VI : Modules and Packages in Python**

- What are Modules and Packages
- Creating Modules and Packages
- Importing Modules and Packages
- Working with Standard Libraries

## **Unit VII : Exception Handling in Python**

- What are Exceptions?
- Handling Exceptions
- Raising Exceptions
- Using Try and Except Blocks

# **2TDCA-204 : Introduction to Cyber Security**

**Unit I : Introduction to Cyber Security** - Defining Cyberspace and Overview of Computer and Web-technology, Architecture of cyberspace, Communication and web technology, Internet, World wide web, Advent of internet, Internet infrastructure for data transfer and governance, Internet society, Regulation of cyberspace, Concept of cyber security, Issues and challenges of Cyber Security.

**Unit II : Cyber Crime and Cyber Law** - Classification of cyber-crimes, Common cyber-crimes cybercrime targeting computers and mobiles, cyber-crime against women and children, financial frauds, social engineering attacks, malware and ransomware attacks, zero day and zero click attacks, Cybercriminals modus-operandi , Reporting of cyber-crimes, Remedial and mitigation measures, Legal perspective of cyber-crime, IT Act 2000 and its amendments, Cyber-crime and offences, Organisations dealing with Cyber-crime and Cyber security in India, Case studies.

**Unit III : Social Media Overview and Security** - Introduction to Social networks. Types of Social media, Social media platforms, Social media monitoring, Hashtag, Viral content, Social media marketing, Social media privacy, Challenges, opportunities and pitfalls in online social network, Security issues related to social media, Flagging and reporting of inappropriate content, Laws regarding posting of inappropriate content, Best practices for the use of Social media, Case studies.

**Unit IV : E – Commerce and Digital Payments** - Definition of E- Commerce, Main components of E-Commerce, Elements of E-Commerce security, E-Commerce threats, E-Commerce security best practices, Introduction to digital payments, Components of digital payment and stake holders, Modes of digital payments- Banking Cards, Unified Payment Interface (UPI), e-Wallets, Unstructured Supplementary Service Data (USSD), Aadhar enabled payments, Digital payments related common frauds and preventive measures. RBI guidelines on digital payments and customer protection in unauthorised banking transactions. Relevant provisions of Payment Settlement Act,2007,

**Unit V : Digital Devices Security, Tools and Technologies for Cyber Security** - End Point device and Mobile phone security, Password policy, Security patch management, Data backup, Downloading and management of third party software, Device security policy, Cyber Security best practices, Significance of host firewall and Ant-virus, Management of host firewall and Anti-virus, Wi-Fi security, Configuration of basic security policy and permissions.

## **2TDCA-205 : Project Report**

All the candidates of DCA are required to submit a project-report based on the work done by him/her during the project period. A detailed Viva shall be conducted by an external examiner based on the project report.