Annexure I

Computer Applications Associate
(Detailed Curriculum)

Section – 1

Module Wise Learning Outcomes

SI	Module Unit	Duration (Theory) in Hours	Duration (Practical) in Hours	Learning Outcomes
1	Computer Fundamentals	30	40	After completing this unit, Learner will be able to - Operate a computer system - Prepare reports & presentation - Maintain files & records
2	System Maintenance & Information Security	30	50	After completing this unit, Learner will be able to - Identify computer parts, general maintenance of systems - Troubleshoot computer systems - Identify & protect system from various threats and vulnerabilities.
3	Internet Technology & Web Design	30	50	After completing this unit, Learner will be able to - Know the Anatomy of Internet, basic Internet terminology, Net etiquette - Design HTML pages
4	Multimedia	30	50	After completing this unit, Learner will be able to - Identify components of Multimedia - Use of Multimedia components like images and text - Design and edit images - Create brochures, leaflets, reports
5	Concepts of DBMS	30	50	After completing this unit, Learner will be able to - Know the basics of DBMS - Use Database operations - Design & develop applications using MS-Access and MySQL.
7	Project / OJT	30		Learner will carry out a Project using the knowledge learned in this course. Or, Learner will experience a working environment where records and files maintenance, system status checking etc. are done.

8	Employability Skill	30	Learner will be able to know the various qualities required for employability.

Module 1: Computer Fundamental

1.   Introduction to Computer

What is computer? Characteristics of Computers, Basic Applications of Computer, Components of Computer System, Central Processing Unit(CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software, Classifications of computers, Representation of data/Information concepts of data processing, Definition of Information and data, Basic data types, Storage of data/ Information as files

2. Introduction to Windows

What is an operating system and basics of Windows : The User Interface, Using Mouse and Moving Icons on the screen, The My Computer Icon, The Recycle Bin, Status Bar, Start and Menu & Menu-selection, Running an Application, Windows Explorer Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows
Windows Setting: Control Panels, Wall paper and Screen Savers, Setting the date and Sound, Concept of menu Using Help
Advanced Windows: Using right Button of the Mouse, Creating Short cuts, Basics of Window Setup, Notepad, Window Accessories

3. Basic DOS commands

Comparison of DOS and Windows, Switching Between DOS and Windows, Basic DOS Commands, File/Directory Manipulations, Copying of files and Disks, Delete/Undelete, Formatting a flash/pen drive

4. Elements of Word Processing

Word Processing Basic: An Introduction to Word Processing, Opening Word Processing Package, The Menu Bar, Using the Help, Using the Icons below menu bar
Opening Documents and Closing documents: Opening Documents, Save and Save AS, Page Setup, Printing of Documents, Display/Hiding of Paragraph Marks and Inter Word Space
Moving Around in a Document: Scrolling the Document, Scrolling by line/paragraph, Fast Scrolling and Moving Pages
Using a Document/Help Wizard

Text Creation and Manipulation: Paragraph and Tab Setting, Text Selection, Cut, Copy and Paste, Font and Size selection, Bold, Italic and Underline, Alignment of Text: Center, Left, right and Justify

Formatting the Text: Changing font, Size and Color, Paragraph indenting, Bullets and Numbering, Use of Tab and Tab setting, Changing case

Handling Multiple Documents: Opening and closing of Multiple documents, Cut, Copy and Paste across the documents, Saving of Clip boards

Table Manipulation: Concept of table: Rows Columns and Cells, Draw Table, Changing cell Width and Height, Alignment of Text in Cell, Copying of cell, Delete/insertion of row and columns, Borders for Table

Printing: Printing, Print Preview, Print a selected page

5. Spread Sheet

Elements of Electronics Spread Sheet: Application/usage of Electronic Spread Sheet, Opening of Spread Sheet, The menu bar, Creation of cells and addressing of cells, Cell inputting

Manipulation of cells: Enter texts numbers and dates, Creation of tables, Cell Height and Widths, Copying of cells

Providing Formulas: Using basic functions / formalism a cell, Sum function, Average Percentage, Other basic functions

Spread sheets for Small accountings: Maintaining invoices/budgets, Totaling of various transactions, Maintaining daily and monthly sales reports

6. Making Small Presentations

Basics: Difference between presentation and document, Using Power Point, Opening a Power Point Presentation, Using Wizard for creating a presentation

Creation of Presentation: Title, Text Creation, Fonts and Sizes, Bullets and indenting, Moving to Next Slide

Preparation of Slides: Selection of type of Slides, Importing text from word documents, Moving to next Slide, The Slide manager

Providing aesthetics: Slide Designs, Background and Text colors, Making your own slide format, Footnotes and slide numbering

Slide Manipulation and Slide Show

Presentation of the Slides: Using the Slide Show, Printing the Slides and Handouts, Slide sorter, Title sorter

7. Introduction to Digital India Schemes

Introduction to Digital Payment

Different Mode of digital payment: Unified Payment Interface, Aadhaar Enable Payment

System, Unstructured Supplementary Service Data, E-Wallet, POS, BHIM (Bharat Interface for Money)

Digital Locker: Creating Digital Locker, Uploading document in Digital Locker, Sharing Document in Digital Locker

Module 2: System Maintenance & Information Security

1. **Computer hardware basics:** CPU's, Multiple Cores, Cache, FSB, Laptop CPU's, Desktop RAM, Laptop RAM, PATA & SATA configuration, floppy disk drives, optical drives. Troubleshooting computers**:** Identifying power problems, POST error codes, boot failures and peripheral failures.

2. **Computer peripheral devices:** Installation and Troubleshooting of peripherals like Printers, Scanners. Modems, Monitors, USB, Bluetooth and Wireless Devices.

3. **Trouble shooting OS& Application Software:** Advanced Boot Options, Stop Errors (BSOD), Safe Mode, CHKDSK, FIXBOOT, FIXMBR, Repair Install, MSCONFIG, System Restore, Performance Issues, Application Problems, the Registry, Malware (Viruses)

4. **Information Technology and Society:** Indian IT Act, Intellectual Property Rights - issues. Cyber laws.

5. **Trends in IECT:** Cloud computing, Digital signature, e-Governance

6. **Information Security basics:** Introduction to Information Security, Goals of Information Security, Types of attacks, Preventive Measures

7. **Workstation Security :** Windows Security , Choosing Strong Passwords, Virus, Worms and Malware, Spyware and Adware, Patches and Updates**,** Network Attacks, Firewalls, Intrusion Detection Systems

8. **Internet Security :** Internet configurations, Internet protocols and security, application security WWW security - SHTTP, SMIME, PGP, SET, E-mail and IMsecurity, access control - physical and logical biometrics introduction, Internet security protocols

9. **Email Security** : Email client configuration, Sending email in another persons address, Browser Security configuration, Email header of fake message, Email header of real message, Email viruses

10. **Backup and Disaster Management** : Security policies and procedures, business

continuity planning, disaster recovery planning, business impact analysis, risk assessment methodologies, risk classification, asset classification, information classification, resource recovery strategy, crisis management plan – incident management, logging and analysis, data backs and recovery

11. OS Installation and Securing: Installation and configuration of the Windows and Linux operating system, implementing and managing the network infrastructure, disk and file system management. Operating system security.

Module 3: Internet Technology and Web Design

1. 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.

2. Internet Applications : Commerce on the Internet, governance on the Internet, Impact of Internet on society – Crime on/through the Internet

3. Internet Technology : TCP/IP – protocol, Internet connectivity, packet switching technology, Internet protocols: TCP/IP, Router, Internet addressing scheme: Machine addressing (IP address), E-mail addresses, resources addresses connectivity types: level one, level two and level three connectivity, setting up a connection: hardware requirement, selection of a modem, software requirement, modem configuration, Internet accounts by ISP: telephone line options, protocol options, service options, telephone line options – dialup connections through the telephone system, dedicated connections through the telephone system, ISDN, protocol options – Shell, SLIP, PPP, service options – E-mail, WWW, Firewall etc.

4. 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: severs, clients, communication media, types of network: peer to peer, clients server, addressing in Internet: DNS, domain name and their organization, understanding the Internet protocol address. Network topologies: Bust, star and ring, Ethernet, FDDI, ATM and Intranet.
E-mail, WWW, Telnet, FTP, IRC and search engine

5. 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.

6. Web Browsing and Current Trends on Internet: Overview, SGML, web hosting, HTML. CGL, Documents Interchange Standards, components of web publishing, document management, web Page design consideration and principles, search and Meta Search Engines, WWW, browser, HTTP, publishing tools languages, Internet phone, Internet video, collaborative computing, e-commerce.

7. HTML Programming Basics : HTML page structure, HTML text, HTML links, HTML document tables, HTML frames, HTML images, multimedia

Module 4 : Multimedia

1. Introduction to Multimedia

Basics of Multimedia, Components of Multimedia, Applications of Multimedia.

2. Image Fundamentals and Fonts

Colour science, colour, colour models, colour palettes, dithering, 2D graphics, image compression and file formats.
Usage of text in multimedia, families and faces of fonts, outline fonts, bitmap fonts, international character sets and hypertext, digital fonts techniques.

3. Adobe Photoshop

Introduction : Photoshop Interface, Raster graphics & Vector graphics, Operations on image
Manipulation of Image : The Marquee tool, the Lasso tool, Magic Wand tool, Inverting Selection, Layers, Brush tool, Eraser tool, Fill tool, Blur tool, Smudge tool, Sharpen tool, Dodge tool, Sponge tool, Darken tool.
Transformation & Retouching : Free transform, scaling, rotation, skew, perspective, wrap, distort, crop, image size, canvas size, clone stamp tool, healing brush tool, patch tool, red eye tool, history brush tool.
Colour Correction : Colour swatch, image modes, colour adjustments, colour selection.
Text : The Text tool, editing text, formatting, line & spacing, wrap text, text effects.
Effects : Blending modes, styles, filters, liquefy, vanishing point.
Drawing : The pen tool, drawing shapes, managing paths, converting path to selection.

4. Adobe InDesign

Looking at the Work Area: Using the tools, Using palettes, Workspaces, Using context menus, Opening and closing documents, Changing the view, Selecting objects, Saving a document, Recovering a document after a failure, Undoing mistakes, Working with preferences and defaults.
Setting Up Pages: Setting up basic layout options, Using rulers, grids, and guides, Working with pages and spreads, Numbering pages, Changing Numbering and Section Options, Using master pages, Laying out pages with frames, Adjusting layout objects automatically, Working with layers.
Working with Text: About text frames, About threading text frames, Adding text to frames, Setting text frame properties, Editing text, Finding and changing text, Finding and changing fonts, Combining text and graphics, Creating path type.
Setting Type: Formatting characters, Formatting paragraphs, Working with tabs, Copying type attributes with the eyedropper tool, Working with the type composition engines,

Controlling hyphenation and justification, Paragraph and character style sheets, Creating nested styles, OpenType, Glyphs palette.

Arranging and Combining Objects: Modifying objects using graphics frames, Grouping and ungrouping objects, Stacking objects, Aligning and distributing objects, Locking object position, Moving objects, Changing size, proportions, or orientation, Duplicating objects.

Applying Color: About spot and process color types, Working with swatches and unnamed colors, Applying color, Using the Swatches palette, Mixed inks, Mixed ink groups, Using swatch libraries, Using the Color palette, Applying colors by dragging and dropping, Creating gradients.

Creating Tables: Creating and editing tables, Importing spreadsheets from Word or Excel, Advanced table techniques, Placing graphics into tables.

Adobe Product Integration: Working with Acrobat, Photoshop, and Illustrator files, Using Photoshop layer masks instead of clipping paths, Using Photoshop's file browser, Copy and Paste from Illustrator to InDesign CS

PDF, Print, Preflight, and Package: PDF styles, Export options, PDF in detail, Other export formats (ID Interchange), Preflighting your files, Using the Package command, Printing and transparency, Flattener settings, The Separations palette.

Module 5: Concepts of DBMS

1. An Overview of Database Management System: Introduction to database, database system, database management system (DBMS), advantages of DBMS.

2. Data Base Operations: Data Manipulation-Concept: Database, Relational Database, integrity.
Operations: Creating, dropping, manipulating table structure. Manipulation of Data, SQL

3. Design and Development of Applications using MS Access: Creation of Tables, Queries, GUI, Creation of Forms - text box, labels, list box, combo box, buttons and controls, Generation of Reports , Web browsing to a form , Web Page reports

4. Design and Development of Applications using MySQL : Creation of Tables, Queries using MySQL.

Module 7: PROJECT

The Project is carried out by the student under guidance and support of faculty and management of the respective Institute / Organization. It is felt that such a project provides an opportunity to the student to apply his/ her knowledge and skills to real life problems (including oral and written communication skills), and as such the project should be given utmost importance and priority both by the students as well as institution faculty / management in respect of its identification, planning and implementation.

Objective of the Project

The aim of the project is to give the students an additional hand-on experience in solving a real-life problem by applying knowledge and skills gained on completion of theory papers in a course at a given Level. It provides an occasion for students to develop written and communication skills. Project also helps the students to realize the importance of resource and time management, ownership of task towards deliverables, innovation and efficiency in task management apart from presentation skills. It also provides a good opportunity for students to build, enhance and sustain high levels of professional conduct and performance and evolves a problem solver frame of mind in the students. It is also felt that taking up the project by a student prepares him for a job in industry and elsewhere.

CAA Project Submission

A Candidate should submit a Project synopsis in the prescribed format. After the approval of the Project, the candidate is expected to carry out the Project successfully and submit a soft copy. A Project demonstration cum Viva-voce will be conducted.

Module 8: Employability Skills

1. Introduction to Employability Skills
2. Career Development & Goal Setting
3. Becoming a Professional in the 21st Century
4. Basic English Skills
5. Communication Skills
6. Financial and Legal Literacy
7. Entrepreneurship
8. Diversity & Inclusion
9. Constitutional Values - Citizenship

Section – 2

List of Equipment (For a batch of 20 students)

	Description	Qty	Specifications
1	Classroom	1	30 sq.m
2	Student Table	20	
3	Student Chair	20	
4	Trainer Table & Chair	1	
5	LCD Projector & screen	1	
6	White Board	1	
7	Desktop / Laptop	21	x86/64 CPU architecture, 6th gen or higher, Intel or AMD CPU, 8 GB RAM or higher, 20 GB of available disk space

Section – 3

TRAINERS PROFILE

Level   :   **4**
Batch Size   :   **20**
No. of Trainers   :   **1**
No. of Demonstrators   :   **1**

Educational Qualification	BCA / B.Sc (IT) / A Level (IT)
Experience	Minimum 1 year experience in related field
Technical Skills	- Good knowledge of Application software for word processing, spreadsheet and presentation - Hands on experience on Computer Hardware - Good knowledge of Multimedia tools & applications - Good knowledge of Database
Other Skills	- Should be able to communicate well in English - Good command on regional language - Knowledge of Working on Computers - Should be able to prepare lesson plan, deliver the courses through the specified media as per schedule - Should be able to aspire the trainees & evaluate and assess the trainees - Should be able to monitor progress and give feedback to trainees - Should be able to maintain MIS related to training

LIST OF SOFTWARE (For a batch of 20 students)

1. Primary Requirement

Computer	-	Operating System (Windows/Linux)
	-	Web Browser
	-	Antivirus
	-	Internet Connectivity
Hardware	-	Motherboard, SMPS, Cabinet, RAM, Processor, HDD, Optical drive, keyboard, mouse, Screw driver set, Power cord

2. Software for Documentation, Calculation & Presentation

Proprietary software	-	Microsoft Office
Open-source software	-	Libre Office

3. Software for Multimedia

Image Editing	-	Adobe Photoshop
DTP	-	Adobe InDesign

4. Software for Database

Open-source / Proprietary	-	Microsoft Access
software (as applicable)	-	MySQL