



GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

COMPETENCY BASED CURRICULUM

COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA)

(Duration: One Year)

**CRAFTSMEN TRAINING SCHEME (CTS)
NSQF LEVEL- 3.5**



SECTOR – IT & ITES

CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE

Kolkata-700091

COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA)

(Non-Engineering Trade)

(Revised in August 2025)

Version: 3.0

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL – 3.5



Developed By

CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE

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CONTENTS

SL. No.	Topics	Page No.
1.	Course Information	1
2.	Training System	2
3.	Job Role	6
4.	General Information	8
5.	Learning Outcome	10
6.	Assessment Criteria	11
7.	Trade Syllabus	14
8.	Annexure I (List of Trade Tools & Equipment)	38
9.	Annexure II (List of Contributors)	40
10.	Annexure III (Abbreviations)	42

1. COURSE INFORMATION

During one-year duration of 'COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA)' trade, a candidate is trained on Professional Skill, Professional Knowledge and Employability Skill related to job roles. In addition to this, a candidate is entrusted to undertake project work, extra-curricular activities and on-the-job training to build up confidence. The broad components covered under Professional Skill subject are as below:

The trainee learns about safety and environment, use of fire extinguishers. He learns about trade tools, identifies computer peripherals, internal components, basic DOS and powershell commands, Operating System interface and its related software installation process. Trainees will work with software package to create document, practice with Spreadsheet sheet and get idea to create a good presentation, maintain database with MySQL. They will set up and configure a network system of an organization. They will understand and able to work on Advanced Spreadsheet concepts. They will use internet to search information using browser along with official/ social communication process. Trainees will learn E-commerce system and will be able to browse, select and transact using different E-commerce websites. They will identify different type of cybercrimes now days and will be able to secure information from Internet by using cyber security concept. The trainees will be able to use cloud for their projects. They will comprehend the basic programming techniques and can create algorithms and flow charts. Trainees will create basic static webpage using HTML. Trainees can go on industrial visit or projects specified in the syllabus. The trainee learns scripting language i.e. JavaScript and will develop dynamic webpage and hosting technique in a registered domain. Understand basic AI concept and using AI in various work. They will be able to develop programmes using Python.

2.1 GENERAL

The Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers a range of vocational training courses catering to the need of different sectors of economy/ Labour market. The vocational training programmes are delivered under the aegis of Directorate General of Training (DGT). Craftsman Training Scheme (CTS) with variants and Apprenticeship Training Scheme (ATS) are two pioneer schemes of DGT for strengthening vocational training.

COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA) trade under CTS is one of the popular courses delivered nationwide through a network of ITIs. The course is of one-year duration. It mainly consists of Domain area and Core area. The Domain area (Trade Theory & Practical) imparts professional skills and knowledge, while the core area (Employability Skill) imparts requisite core skills, knowledge, and life skills. After passing out the training program, the trainee is awarded National Trade Certificate (NTC) by DGT which is recognized worldwide.

Candidates broadly need to demonstrate that they are able to:

- Read and interpret technical parameters/documents, plan and organize work processes, identify necessary materials and tools;
- Perform tasks with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
- Apply professional skill, knowledge & employability skills while performing jobs.
- Document the technical parameters related to the task undertaken.

2.2 PROGRESSION PATHWAYS

- Can join industry as computer operator and will progress further as assistant programmer, programmer and can rise up to the level of senior programmer.
- Can become Entrepreneur in the related field.
- Can join Apprenticeship programs in different types of industries leading to a National Apprenticeship certificate (NAC).
- Can join Crafts Instructor Training Scheme (CITS) in the trade for becoming instructor in ITIs.
- Can join Advanced Diploma (Vocational) courses under DGT as applicable.

2.3 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of one year: -

S No.	Course Element	Notional Training Hours
1	Professional Skill (Trade Practical)	840
2	Professional Knowledge (Trade Theory)	240
3	Employability Skills	120
Total		1200
On the Job Training (OJT)/ Group Project *		150
Optional Courses**		240
Grand Total		1590

* The trainee has to undergo 150 hours of mandatory OJT (On the Job Training) at nearby industry or wherever industry not available then group project has to be done with the supervision of the trade instructor for every year.

** Trainees of one-year or two-year trade can also opt for optional courses of up to 240 hours in each year for obtaining 10th/ 12th class certificate from NIOS along with ITI certification, or, short term courses for extra skills/knowledge.

2.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his/her skill, knowledge and attitude during the period of course through formative assessment and at the end of the training programme through summative assessment as notified by the DGT from time to time.

a) The **Continuous Assessment** (Internal) during the period of training will be done by **Formative Assessment Method** by testing for assessment criteria listed against learning outcomes. The training institute has to maintain an individual trainee portfolio as detailed in assessment guideline. The marks of internal assessment will be as per the formative assessment template provided on www.cstaricalcutta.gov.in or www.bharatskills.gov.in

b) The final assessment will be in the form of summative assessment. The All India Trade Test for awarding NTC will be conducted by **DGT** as per the guidelines. The pattern and marking structure is being notified by DGT from time to time. **The learning outcome and assessment criteria will be the basis for setting question papers for final assessment. The examiner during**

final examination will also check the individual trainee’s profile as detailed in assessment guideline before giving marks for practical examination.

2.4.1 PASS REGULATION

For the purposes of determining the overall result, weightage of 100% is applied for six months and one-year duration courses and 50% weightage is applied to each examination for two years courses. The minimum pass percentage for Trade Practical and Formative assessment are 60% & for all other subjects is 33%.

2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. Due consideration should be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/waste as per procedure, behavioral attitude, sensitivity to the environment and regularity in training. The sensitivity towards Occupational Safety, Health and Environment (OSHE) and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based comprising some of the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work
- Computer based multiple choice question examination
- Practical Examination

Evidences and records of internal (Formative) assessments are to be preserved until forthcoming examination for audit and verification by examining body. The following marking pattern to be adopted for formative assessment:

Marks Allotted during Assessment	Performance Level	Evidence
Marks between 60% to 75%	For performance in this grade, the candidate should produce work which demonstrates attainment of an acceptable	<ul style="list-style-type: none"> • Demonstration of good skills and accuracy in the field of work/ assignments. • A fairly good level of



	standard of craftsmanship with occasional guidance, and due regard for safety procedures and practices	neatness and consistency to accomplish job activities. <ul style="list-style-type: none">• Occasional support in completing the task/ job.
Marks above 75% to 90%	For this grade, a candidate should produce work which demonstrates attainment of a reasonable standard of craftsmanship, with little guidance, and regard for safety procedures and practices	<ul style="list-style-type: none">• Good skill levels and accuracy in the field of work/ assignments.• A good level of neatness and consistency to accomplish job activities.• Little support in completing the task/job.
Marks Above 90%	For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.	<ul style="list-style-type: none">• High skill levels and accuracy in the field of work/ assignments.• A high level of neatness and consistency to accomplish job activities.• Minimal or no support in completing the task/ job.

3. JOB ROLE

Brief Description of Job Roles:

Computer Operator: operates computer and peripheral equipment to process business, scientific, engineering, or other data, according to operating instructions. Enters commands, using keyboard of computer terminal, and presses buttons and flips switches on computer and peripheral equipment, such as tape drive, printer, data communications equipment, and plotter, to integrate and operate equipment, following operating instructions and schedule. Loads peripheral equipment with selected materials, such as tapes and printer paper for operating runs, or oversees loading of peripheral equipment by Peripheral Equipment Operators. Enters commands to clear computer system and start operation, using keyboard of computer terminal. Observes peripheral equipment and error messages displayed on monitor of terminal to detect faulty output or machine stoppage. Enters commands to correct error or stoppage and resume operations. Notifies supervisor of errors or equipment stoppage. Clears equipment at end of operating run and reviews schedule to determine next assignment. Records problems which occurred, such as down time, and actions taken. May answer telephone calls to assist computer users encountering problem. May assist workers in classifying, cataloguing, and maintaining tapes.

Programming Assistant: installs, maintains, and updates computer programs by making minor changes and adjustments to them under the guidance of computing professionals. Maintains and updates documents of computer programs and installations. Applies knowledge of principles and practices in programming and computing in order to identify and solve problems arising in the course of their work. They may receive guidance from managers or professionals. May supervise other workers also.

Web Developer: Web Developer is responsible for designing and maintaining web-based applications that include static and dynamic content. This includes the design, layout, and coding of a website. They may work standalone or along with application/functional developers as part of the overall solution that includes a web-based component.

User Interface Developer: I Developer is responsible for creating complex user interfaces for a variety of applications, such as computer programs, databases, and websites.

Data Communication Analyst/Network Administrator: Data Communication Analyst researches, tests, evaluates, and recommends data communications hardware and software: Identifies areas of operation which need upgraded equipment, such as modems, fibre optic cables and telephone wires. Conducts survey to determine user needs. Reads technical manuals and brochures to determine equipment which meets establishment requirements. Visits vendors to learn about available products or services. Tests and evaluates hardware and

software to determine efficiency, reliability, and compatibility with existing system, using equipment such as computer terminal and modem. Analyses test data and recommends hardware or software for purchase. Develops and writes procedures for installation, use, and solving problems of communications hardware and software. Monitors system performance. Trains users in use of equipment. Assists users to identify and solve data communication problem. May write technical specifications to send to vendors for bid. May oversee or assist in the installation of communications hardware. May perform minor equipment repairs.

Reference NCO-2015: -

- i) 4131.0600 – Computer Operator
- i) 3514.0300 – Programming Assistant
- ii) 2513.0101 – Web Developer
- iii) 2513.0201 – User Interface Developer
- iv) 2523.0100 – Data Communication Analyst/ Network Administrator

4. GENERAL INFORMATION

Name of the Trade	COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA)
Trade Code	DGT/1003
NCO – 2015	4131.0600, 3514.0300, 2513.0101, 2513.0201, 2523.0100
NSQF Level	Level-3.5
Duration of the Trade	One Years
Entry Qualification	Passed 10 th class examination
Minimum Age	14 years as on first day of academic session.
Eligibility for PwD	LD, CP, LC, DW, AA, LV, HH, AUTISM, SLD
Unit Strength (No. of Student)	24 (There is no separate provision of supernumerary seats)
Space Norms	60 Sq. m
Power Norms	5.5 KW
Instructors Qualification for:	
(i) COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA) Trade	<p>B.Voc/Degree in Computer Science/ IT from AITCE/UGC Recognized University with one year experience in COPA field.</p> <p style="text-align: center;">OR</p> <p>Post Graduate in Computer Science /Computer Application / IT from UGC Recognized University or NIELIT B Level with one year experience in COPA field.</p> <p style="text-align: center;">OR</p> <p>Bachelor in Computer Science / Computer Application / IT OR PGDCA from UGC recognized University or NIELIT A Level with two-year experience in COPA field.</p> <p style="text-align: center;">OR</p> <p>03 years Diploma in Computer Science / IT from recognized Board/ Institute or relevant Advanced Diploma (Vocational) (ADIT) from DGT with two-year experience in COPA field.</p> <p style="text-align: center;">OR</p> <p>NTC/NAC in COPA or any trade in IT-ITeS sector trade with three-year experience in COPA field.</p> <p>Essential Qualification: Relevant Regular / RPL variants of National Craft Instructor Certificate (NCIC) under DGT.</p>
(ii) Employability Skill	<p>MBA/ BBA / Any Graduate/ Diploma in any discipline with Two years' of teaching or industry experience with short term ToT Course in Employability Skills conducted by DGT institutions. (Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above)</p>



	OR Existing Social Studies Instructors in ITIs with short term ToT Course in Employability Skills conducted by DGT institutions.
(iii) Minimum Age for Instructor	21 Years
List of Tools and Equipment	As per Annexure – I

5. LEARNING OUTCOME

Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.

5.1 LEARNING OUTCOME:

Sl. No.	Learning Outcome	Duration		
		Practical	Theory	Total
1.	Install and setup operating system and related software in a computer following safety precautions.	90	30	120
2.	Create, format and edit document using word processing application software.	50	10	60
3.	Create and customize slides for presentation.	50	10	60
4.	Create, format, edit and develop a workbook by using spreadsheet application software.	70	20	90
5.	Create workbooks with advanced formulae, macros, charts, pivot tables and demonstrate ability to use Power tools.	70	20	90
6.	Create and manage database file using MySQL.	50	10	60
7.	Install, setup/configure, troubleshoot and secure computer network including Internet.	70	20	90
8.	Develop web pages using HTML and CSS.	70	20	90
9.	Develop web pages using Java Script.	170	40	210
10.	Browse, select and transact using E-commerce websites.	20	10	30
11.	Explain Cloud concepts & services and Describe Application Development Life Cycle.	20	10	30
12.	Secure information from Internet by using cyber security concept.	20	10	30
13.	Demonstrate AI Integration with different applications	20	10	30
14.	Write programs using Python language.	70	20	75
Employability Skills			120	120
Total		840	360	1200

6. ASSESSMENT CRITERIA

LEARNING OUTCOMES	ASSESSMENT CRITERIA
1. Install and setup operating system and related software in a computer following safety precautions.	Identify basic first aid and use them under different circumstances.
	Identify different fire extinguisher and use the same as per requirement.
	Assemble a computer
	Install and configure Windows OS.
	Install the printer and other peripheral devices.
	Install application software.
	Troubleshoot the PC.
	Execute DOS and LINUX commands.
	Customize Windows and LINUX OS settings.
2. Create, format and edit document using word processing application software.	Create your resume using editing/formatting options in a document.
	Create purchase order using tables and images.
	Create magazine using columns page borders, header footers.
	Create an invitation letter using mail merge for n invitees.
3. Create and customize slides for presentation.	Create simple presentations
	Create presentations with tables, images & graphic elements
	Create presentations with audio & video elements with transitions
4. Create, format, edit and develop a workbook by using spreadsheet application software.	Identify Spreadsheet tools in the Ribbon.
	Create mark sheet using a spreadsheet with data validation.
	Create a chart for the mark sheet.
	Create Pay slip using functions and formulae with sharing two different sheets/files.
	Create a table and Perform Sorting; filtering, Subtotal, validation, and goal seek on a table.
	Prepare a pivot table on any existing table with data.
	Create a table and Perform Sorting; filtering, Subtotal, validation, and goal seek on a table.
	Prepare a pivot table on any existing table with data.
5. Create workbooks with advanced formulas, macros, charts, pivot tables and demonstrate ability to use Power tools.	Create workbooks with advanced functionalities in Spreadsheet.
	Create advanced charts & Pivot Tables.
	Create output files using specific Power tool.
6. Create and manage	Create simple database on Relational Database in MySQL using data



database file by using MySQL.	validation, filters, sorting, query.
	Import, Export, Link, Backup and Retrieve database in MySQL.
	Create query with functions, joins, sub-query.
7. Install, setup/configure, troubleshoot and secure computer network including Internet.	Identify different cables and connectors used in networking.
	Assign Computer Name and workgroup to a computer Prepare UTP cross cable & connect computers.
	Share a printer with Network.
	Share Internet using Windows Tools.
	Check Network connectivity.
	Configure HUB & Switch.
	Configure DHCP and firewall.
	Secure Network with various tools.
	Create E Mail ID and sending / receiving mails Perform text chat and video chat using social network sites Configure Outlook Express.
8. Develop web pages using HTML, CSS.	Create Text, Lists, Tables, and Frames with HTML.
	Create Hyperlinks, Images and Multimedia Working with Forms and controls.
	Create Lists and Tables with CSS.
	Create Box Model by using borders, Padding, and Margin with CSS.
	Create CSS document by Grouping, Dimension, Display, Positioning, Floating, Align, Pseudo class, Navigation Bar, Image Sprites, Attribute sector.
	Create simple static Web Pages using internal styles (CSS) and external style.
9. Develop web pages using Java Script.	Design a dynamic Web Page in JavaScript using various operators.
	Design a dynamic Web Page in JavaScript using various control statements and looping structures.
	Design a dynamic Web Page in JavaScript using strings and functions.
	Design a dynamic Web Page in JavaScript using Arrays and objects.
	Design a dynamic Web Page in JavaScript using Web Forms and images.
10. Browse, select and transact using E-commerce websites.	Place order for products from E commerce websites for purchase.
	Upload a product in E Commerce site for sale.
	Identify security issues in E- commerce and payment operations.
11. Explain Cloud concepts	Create cloud concepts.



& services and Describe Application Development Life Cycle.	Use common cloud services such as Office 365, Google Drive, Dropbox.
	Identify the phases of Application Development Life Cycle.
	Describe Roles in each of phases of the Application Development Life Cycle.
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12. Secure information from Internet by using cyber security concept.	Provide firewall security for Internet connection and Network System.
	Make backup copies of important file, data, and information.
	Secure your Wi-Fi networks using wireless security features.
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13. Demonstrate AI Integration with different applications.	Convert a PDF into Document using AI Tools and summarize it.
	Design a document on a topic using AI Tools
	Analyse a Spreadsheet file using AI Tools
	Insert various photos generated through Generative AI tools into document.
	Design a document on a topic generated through Generative AI tools.
	Design a 10 slide presentation on a topic using AI Tools.
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14. Write programs using Python language.	Install Python.
	Perform operations on Python; construct simple code and document these.
	Perform Document code segments using comments and documentation strings.
	Perform operations using in-built modules / libraries.
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7. TRADE SYLLABUS

SYLLABUS FOR COMPUTER OPERATOR AND PROGRAMMING ASSISTANT			
DURATION: ONE YEAR			
Duration	Reference Learning Outcome	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
Professional Skill - 90 Hrs; Professional Knowledge - 30 Hrs	1. Install and setup operating system and related software in a computer following safety precautions.	Safe working practices <ol style="list-style-type: none"> 1. Visit COPA Lab. of the institutes and locate the electrical connections with computer system setup. 2. Identifying safety symbols and hazard identification. 3. Practice safe methods of fire fighting in case of electrical fire. 4. Use of fire extinguishers. Assemble a Desktop PC <ol style="list-style-type: none"> 5. Identify computer peripherals and internal components of a desktop computer. 6. Assemble components of desktop computer. Using Windows Operating Systems <ol style="list-style-type: none"> 7. Practice on Windows interface and navigating windows. 8. Practice on managing files and folders using removable drives. 9. Customize the desktop 10. Settings and manage user accounts. 11. View system properties and control panel details. 12. Practice typing using keyboard using English and any regional language. 13. Work with keyboard shortcut commands. 14. Print and scan document 	Introduction to Computers <ul style="list-style-type: none"> ● Safe working practices ● Scope of the COPA trade. ● Safety rules and safety signs. ● Types and working of fire extinguishers. Introduction to Computer components Introduction to computer system <ul style="list-style-type: none"> ● Concepts of Hardware and Software. ● Function of motherboard components and various processors. ● Various Input/ Output devices in use and their features Introduction Windows Operating System <ul style="list-style-type: none"> ● Introduction to operating System ● Main features of Windows OS ● Concept of various shortcut commands. Introduction to the booting process <ul style="list-style-type: none"> ● Introduction to various types of memories and their features. ● Basic Hardware and software issues and their solutions.

		<p>using different commands.</p> <p>15. Perform screen capturing and Recording.</p> <p>Computer basics and Software Installation</p> <p>16. View the BIOS settings and their modifications.</p> <p>17. Install Windows operating system.</p> <p>18. Format hard disk and create partition.</p> <p>19. Identify and rectify common hardware and software issues during OS installation.</p> <p>20. Install necessary application software for Windows i.e., Office Package, PDF Reader, Media Player etc.</p> <p>21. Configure Bluetooth and Wi-Fi settings.</p> <p>22. Install Drivers for printer, scanner, webcam and DVD etc.</p> <p>23. ISO image creation –Flash drive</p> <p>DOS & power shell Command Line Interface</p> <p>24. Use basic DOS commands for directory listing.</p> <p>25. Manage files and folders using DOS commands.</p> <p>26. Practice basic power shell cmdlet</p> <p>Install Ubuntu Linux operating system and execute basic Linux commands</p> <p>27. Installation of Ubuntu Linux operating system</p> <p>28. Install necessary application software for Linux i.e., Office Package, PDF Reader, Media Player</p>	<ul style="list-style-type: none"> ● Usage of Application software and Antivirus. <p>Introduction to DOS & power shell Command Line Interface & Linux Operating Systems</p> <ul style="list-style-type: none"> ● Introduction to basic DOS Internal and External Commands. ● Introduction to Open-Source Software ● Introduction to Linux Operating System features, structure, files and processes ● Basic Linux commands. ● Learn power shell cmdlet
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		<p>etc.</p> <p>29. Use Basic Linux commands for directory listing, file and folder management, password etc.</p> <p>30. Use the Linux graphical user interface for file and folder management, exploring the system etc.</p> <p>31. Customize desktop settings and manage user accounts in Linux.</p> <p>32. View system properties and manage system setting in Linux.</p> <p>33. Use the Internet</p> <ul style="list-style-type: none"> ● Browse the Internet ● Use e-mail ● Use social media ● Use the phone for online activities 	
<p>Professional Skill – 50 Hrs.;</p> <p>Professional Knowledge - 10 Hrs</p>	<p>2. Create, format, and edit document using word processing application software.</p>	<p>Using Word Processing Software</p> <p>Manage documents</p> <p>34. Navigate within documents</p> <ul style="list-style-type: none"> ● Search for text ● Link to locations within documents ● Move to specific locations and objects in documents ● Show and hide formatting symbols and hidden text <p>35. Format documents</p> <ul style="list-style-type: none"> ● Set up document pages ● Apply style sets ● Insert and modify headers and footers ● Configure page background elements ● Insert water mark <p>36. Save and share documents</p> <ul style="list-style-type: none"> ● Save documents in 	<p>Using Word Processing Software</p> <ul style="list-style-type: none"> ● Introduction to the various applications in MS office. ● Introduction to Word features, Office button, toolbars. ● Creating, saving and formatting and printing documents using Word. ● Working with objects, macro, mail merge, templates and other tools in Word. ● Digital signature



		<ul style="list-style-type: none">alternative file formats● Modify basic document properties● Modify print settings● Share documents electronically <p>37. Inspect documents for issues</p> <ul style="list-style-type: none">● Locate and remove hidden properties and personal information● Locate and correct accessibility issues● Spell check and grammar● Locate and correct compatibility issues <p>Format documents</p> <p>38. Insert text and paragraphs</p> <ul style="list-style-type: none">● Find and replace text● Insert symbols, special characters and rupee symbol <p>39. Format text and paragraphs</p> <ul style="list-style-type: none">● Apply text effects● Apply formatting by using Format Painter● Set line and paragraph spacing and indentation● Apply built-in styles to text● Clear formatting <p>40. Create and configure document sections</p> <ul style="list-style-type: none">● Format text in multiple columns● Insert page, section, and column breaks● Change page setup options for a section <p>Manage tables and lists</p> <p>41. Create tables</p> <ul style="list-style-type: none">● Convert text to tables● Convert tables to text● Create tables by	
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		<p>specifying rows and columns</p> <p>42. Modify tables</p> <ul style="list-style-type: none">● Sort table data● Configure cell margins and spacing● Merge and split cells● Resize tables, rows, and columns● Split tables● Configure a repeating row header <p>43. Create and modify lists</p> <ul style="list-style-type: none">● Format paragraphs as numbered and bulleted lists● Change bullet characters and number formats● Define custom bullet characters and number formats● Increase and decrease list levels● Restart and continue list numbering● Set starting number values <p>Create and manage references</p> <p>44. Create and manage reference elements</p> <ul style="list-style-type: none">● Insert footnotes and endnotes● Modify footnote and endnote properties● Create and modify bibliography citation sources● Insert citations for bibliographies <p>45. Create and manage reference tables</p> <ul style="list-style-type: none">● Insert tables of contents● Customize tables of contents● Insert bibliographies	
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		<p>Manage graphic elements</p> <p>46. Insert illustrations and text boxes</p> <ul style="list-style-type: none">● Insert shapes● Insert pictures● Insert 3D models● Insert Smart Art graphics● Insert screenshots and screen clippings● Insert text boxes <p>47. Format illustrations and text boxes</p> <ul style="list-style-type: none">● Apply artistic effects● Apply picture effects and picture styles● Remove picture backgrounds● Format graphic elements● Format SmartArt graphics● Format 3D models <p>48. Add text to graphic elements</p> <ul style="list-style-type: none">● Add and modify text in text boxes● Add and modify text in shapes● Add and modify SmartArt graphic content <p>49. Modify graphic elements</p> <ul style="list-style-type: none">● Position objects● Wrap text around objects● Add alternative text to objects for accessibility <p>Manage document collaboration</p> <p>50. Add and manage comments</p> <ul style="list-style-type: none">● Add comments● Review and reply to comments● Resolve comments● Delete comments	
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		<p>51. Manage change tracking</p> <ul style="list-style-type: none"> ● Track changes ● Review tracked changes ● Accept and reject tracked changes ● Lock and unlock change tracking <p>Manage Mailings</p> <p>52. Perform mail merge</p> <ul style="list-style-type: none"> ● Create envelopes ● Create labels ● Create a new mailing list ● Perform mail merge using an existing list ● Add digital signature in Document 	
<p>Professional Skill – 50 Hrs.;</p> <p>Professional Knowledge - 10 Hrs</p>	<p>3. Create and customize slides for presentation.</p>	<p>Presentations Software</p> <p>53. Open files in Presentation Software (replace)</p> <ul style="list-style-type: none"> ● Open Presentation Software ● Create a new Presentation Software ● Create a new Presentation Software file from a template ● Open an existing Presentation Software file <p>54. Format Presentations</p> <ul style="list-style-type: none"> ● Add slides ● Add titles and text ● Select slide layouts ● Add templates ● Duplicate slides <p>55. Modify slide masters, handout masters, and note masters</p> <ul style="list-style-type: none"> ● Change the slide master theme or background ● Modify slide master content ● Modify slide layouts <p>56. Change presentation</p>	<p>Presentations</p> <ul style="list-style-type: none"> ● Image editing, Presentations ● Introduction to Open Office. ● Introduction to the properties and editing of images. ● Introduction to different formats of images and their uses. ● Introduction to Power Point and its advantages. ● Creating Slide Shows. <p>Fine tuning the presentation and good presentation technique</p>



		<ul style="list-style-type: none">options and views● Change slide size● Display presentations in different views <p>57. Save and share Presentations</p> <ul style="list-style-type: none">● Save presentations in alternative file formats● Configure different Print settings● Share presentations electronically <p>58. Configure and present slide shows</p> <ul style="list-style-type: none">● Hide unwanted slides while presenting● Configure slide show options● Present slide shows by using Presenter View <p>59. Prepare presentations for collaboration</p> <ul style="list-style-type: none">● Protect presentations by using passwords● Export presentations to other formats <p>Format presentations</p> <p>60. Insert text and paragraphs</p> <ul style="list-style-type: none">● Find and replace text● Insert symbols and special characters <p>61. Format text and paragraphs</p> <ul style="list-style-type: none">● Apply text effects● Apply formatting by using Format Painter● Set line and paragraph spacing and indentation● Apply built-in styles to text <p>62. Create and configure sections</p> <ul style="list-style-type: none">● Format text in multiple columns● Text and image	
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		<p>presentation styles</p> <ul style="list-style-type: none">● Clear formatting <p>Manage tables and bulleted text</p> <p>63. Create tables</p> <ul style="list-style-type: none">● Insert tables in PowerPoint● Apply built-in table styles● Create tables by specifying rows and columns <p>64. Modify tables</p> <ul style="list-style-type: none">● Insert and delete table rows and columns● Configure cell margins and spacing● Merge and split cells● Resize tables, rows, and columns <p>65. Create and modify bulleted text</p> <ul style="list-style-type: none">● Format paragraphs as numbered and bulleted lists● Change bullet characters and number formats● Increase and decrease list indents● Set starting number values● Restart and continue list numbering on different slides <p>Create and manage reference elements (hyperlinks)</p> <ul style="list-style-type: none">● Create hyperlinks within presentations● Create hyperlinks in presentations for files and other sources <p>Manage graphic elements</p> <p>66. Insert illustrations and text boxes</p> <ul style="list-style-type: none">● Insert shapes● Insert pictures	
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		<ul style="list-style-type: none">● Insert SmartArt graphics● Insert screenshots and screen clippings <p>67. Format illustrations and text boxes</p> <ul style="list-style-type: none">● Apply artistic effects● Apply picture effects and picture styles● Remove picture backgrounds● Crop images● Format graphic elements● Format SmartArt graphics <p>68. Add and modify text in graphic elements</p> <ul style="list-style-type: none">● Add and modify text in text boxes● Add and modify text in shapes● Add and modify SmartArt graphic text● Create, insert and modify charts <p>Manage Audio & Video elements</p> <p>69. Add Audio elements</p> <ul style="list-style-type: none">● Import audio files in presentations● Configure audio playback options <p>70. Add Video elements</p> <ul style="list-style-type: none">● Import video files in presentations● Resize video to fit slide● Configure video playback options <p>Manage transitions and animations</p> <p>71. Add slide transitions</p> <ul style="list-style-type: none">● Add same slide transition for all slides● Set transition effect duration● Configure transition start	
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		<p>and finish options</p> <ul style="list-style-type: none"> ● Customize select slide transitions <p>72. Add animations</p> <ul style="list-style-type: none"> ● Animate text and graphic elements ● Order shapes, images, and text boxes ● Group shapes, images, and text boxes ● Configure animation effects ● Configure animation paths ● Reorder animations on a slide <p>Manage collaboration</p> <p>73. Add and manage comments</p> <ul style="list-style-type: none"> ● Add comments ● Review and reply to comments <p>74. Use presentation software for Recording Screen.</p>	
<p>Professional Skill - 70 Hrs.;</p> <p>Professional Knowledge - 20 Hrs</p>	<p>4. Create, format, edit and develop a workbook by using spreadsheet application software.</p>	<p>Spread Sheet Application</p> <p>Manage Worksheets and Workbooks</p> <p>75. Open files in spreadsheet</p> <ul style="list-style-type: none"> ● Open Spreadsheet ● Create a new Spreadsheet file ● Create a new Spreadsheet file from a template ● Open an existing Spreadsheet file <p>76. Import data</p> <ul style="list-style-type: none"> ● Import data from txt files ● Import data from csv files <p>77. Navigate within workbooks</p> <ul style="list-style-type: none"> ● Search data ● Navigate to named cells, ranges or workbook 	<p>Spread Sheet Application</p> <ul style="list-style-type: none"> ● Introduction to Spreadsheet features and Data Types. ● Cell referencing and linking Sheets. ● Introduction to various functions in all categories of Spreadsheet. ● Concepts of sorting, filtering and validating data. ● Analyzing data using charts, data tables, pivot tables, goal seek and scenarios



		<p>elements</p> <ul style="list-style-type: none">● Insert and remove hyperlinks <p>78. Format worksheets and workbooks</p> <ul style="list-style-type: none">● Modify page setup● Adjust row height and column width● Customize headers and footers <p>79. Customize options and views</p> <ul style="list-style-type: none">● Display and modify content in different views● Freeze rows and columns● Change window views● Modify basic workbook properties● Display formulas <p>80. Configure content for collaboration</p> <ul style="list-style-type: none">● Set a print area● Save workbooks in alternative file formats● Configure print settings <p>Manage data cells and ranges</p> <p>81. Manipulate data</p> <ul style="list-style-type: none">● Paste data by using special paste options● Fill cells by using Auto Fill● Insert and delete multiple columns or rows● Insert and delete cells <p>82. Format cells and ranges</p> <ul style="list-style-type: none">● Merge and Unmerge cells● Modify cell alignment, orientation and indentation● Format cells using Format Painter	
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		<ul style="list-style-type: none">● Wrap text within cells● Apply number formats● Apply cell formats from the Format cells dialog box● Apply cell styles● Clear cell formatting <p>83. Define and reference named ranges</p> <ul style="list-style-type: none">● Define a named range● Name a table● Summarize data visually Insert spark lines● Apply built in conditional formatting● Remove conditional formatting <p>Manage tables and table data</p> <p>84. Create and format tables</p> <ul style="list-style-type: none">● Create Spreadsheet tables from cell ranges● Apply table styles● Convert tables to cell ranges <p>85. Manage tables and table data</p> <ul style="list-style-type: none">● Add or remove table rows and columns● Configure table style options● Insert and configure total rows <p>86. Filter and sort table data</p> <ul style="list-style-type: none">● Filter records● Sort data by multiple columns <p>Perform operations using formulas and functions</p> <p>87. Insert references</p> <ul style="list-style-type: none">● Insert relative, absolute and mixed references● Reference named ranges and named tables in formulas <p>88. Calculate and transform</p>	
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		<p>data</p> <ul style="list-style-type: none">● Perform calculations using AVERAGE(), MIN(), MAX() and SUM()● Count cells by using COUNT(), COUNTIF() and COUNTBLANK()● Perform conditional operations by using the IF() function <p>89. Format and modify text</p> <ul style="list-style-type: none">● Format text using RIGHT(), LEFT() and MID() functions● Format text using UPPER(), LOWER() and LEN() functions● Format text using CONCAT() and TEXTJOIN() functions <p>Manage Charts</p> <p>90. Create Charts</p> <ul style="list-style-type: none">● Create charts● Create chart sheets <p>91. Modify charts</p> <ul style="list-style-type: none">● Add data series to charts● Switch between rows and columns in source data● Add and modify chart elements● Add trend lines to chart <p>92. Format charts</p> <ul style="list-style-type: none">● Apply chart layouts● Apply chart styles● Add alternative text to charts for accessibility <p>Manage Pivot Tables</p> <p>93. Create Pivot Tables</p> <ul style="list-style-type: none">● Create Pivot tables from cell ranges● Manipulate fields (columns) to get desired analysis● Use Filters for pivot	
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		<p>tables</p> <ul style="list-style-type: none"> ● Represent data as Count, Sum, Average & % of row / column ● Group data in Columns & rows for aggregate reports 	
<p>Professional Skill – 70 Hrs</p> <p>Professional Knowledge - 20 Hrs.</p>	<p>5. Create workbooks with advanced formulas, macros, charts, pivot tables and demonstrate ability to use Power tools.</p>	<p>Data Visualization or analysis using Spreadsheet –</p> <p>Create advanced formulas and macros</p> <p>94. Create and modify simple macros</p> <p>95. Perform form controls and create simple data entry form with macros.</p> <p>96. Look up data by using functions.</p> <p>97. Use advanced date functions.</p> <p>Manage advanced charts and tables</p> <p>98. Create and modify advanced charts.</p> <p>99. Create and modify PivotTables.</p> <p>Use Power Query and Visualization tools</p> <p>100. Create a Power Query, Power Query Function. Invoking the Power Query function and combining queries. Organize the workbook queries</p> <p>101. Perform data modelling</p> <p>102. Use Power BI for simple data visualizations.</p> <p>103. Make a dashboard in Spreadsheet</p>	<p>Advanced Spreadsheet Concepts - Theory-</p> <ul style="list-style-type: none"> ● Spreadsheet revision (row, columns, basic formatting, insert menu, Print setup, etc.) and Look up introduction and functions ● Types of references and cell naming ● Spreadsheet Linkage Custom Format and Spreadsheet Protection ● Tips and tricks ● Pivot table and Pivot chart ● Conditional formatting ● Advanced Graphs ● Power Queries ● Data modelling and visualization
<p>Professional Skill – 50 Hrs.;</p> <p>Professional</p>	<p>6. Create and manage database file by using MySQL.</p>	<p>Demonstrate on</p> <p>104. Installation of MySQL.</p> <p>105. Troubleshooting basic installation issues.</p>	<p>Database Concepts</p> <ul style="list-style-type: none"> · Concept of DBMS, RDBMS. · Data Models, Concept of DBA, Database Users. · Database Schema.



<p>Knowledge - 10 Hrs</p>		<p>106. Creation and use of database.</p> <p>107. Designing of tables.</p> <p>108. Applying data integrity rules.</p> <p>109. Using the DDL, DCL and DML statements.</p> <p>110. Enforcing constraints, primary key and foreign key.</p> <p>111. Adding indices to Tables.</p> <p>Demonstrate on</p> <p>112. Simple select queries.</p> <p>113. Insert and delete queries Update queries.</p> <p>Demonstrate on</p> <p>114. Using the Number, Date and Character functions. Joins and Functions</p> <p>115. Joins, Group by, Having, Sub query.</p>	<p>· Designing Database using Normalization Rules.</p> <p>· Various data types Data integrity, DDL DML and DCL statements.</p> <p>· Enforcing Primary key and foreign key.</p> <p>· Adding Indices.</p> <p>Queries</p> <p>· Concepts of Transactions</p> <p>· ACID Property of Transaction Constraints.</p> <p>Joins and Functions</p> <p>· Joining of tables</p> <p>· Sub Queries</p> <p>· Functions used in query like sum, average, max, min, count etc.</p> <p>Naming conventions</p>
<p>Professional Skill - 70 Hrs; Professional Knowledge - 20 Hrs</p>	<p>7. Install, setup/ configure, troubleshoot, and secure computer network including Internet.</p>	<p>Computer Network Set-up & configure a Computer Network</p> <p>116. View Network connections.</p> <p>117. Connect a computer to a network and share Devices i.e., Printers, files, folders and drives.</p> <p>118. Work with various Network devices, connectors and cables. Create straight and cross cable and punch a UTP cable in the patch socket and test the connectivity.</p> <p>119. Practice IP Addressing and Subnet masking for IPV4/ IPV6 and pinging to test networks.</p> <p>120. Configure Hub and</p>	<p>Communicating in a Connected World</p> <ul style="list-style-type: none"> ● Concepts of computer network, LAN, MAN, WAN ● Introduction to basic Network protocols ● Local Networks, ● Communicating on a Local Network, Principles of Communications, ● How do Ethernet Networks Work? ● How are Networks Built? ● Routing Across Networks ● Explain how end-user devices and local networks interact with



		<p>Switch.</p> <p>121. Set up and configure wired and wireless LAN in a Computer Lab within at least three computers.</p> <p>122. Use patch panel & I/O Box for wired LAN and installing & configuring Internet connection in a single PC and in a LAN.</p> <p>123. Set up a proxy server/ DHCP Server with firewall.</p> <p>124. Set up video conferencing using open-source software.</p> <p>125. Perform Screen sharing</p> <p>126. Use various tools (by open source /free) for network troubleshooting, maintenance and security for both Wired and Wireless</p> <p>127. Set up Internet access & communication</p> <ul style="list-style-type: none"> ● Set-up internet connectivity ● Set-up digital communication 	<p>the global Internet.</p> <ul style="list-style-type: none"> ● Communicating in a Connected World Explain the concept of network communication. ● Local Networks Explain the roles of devices in a network. ● What Does a Home Network Look Like? ● How Does Wi-Fi Work? ● Introduction to LAN Devices, Internetworking Devices, <p>Internet Concepts</p> <ul style="list-style-type: none"> ● Introduction to www, Concept of Internet, Web Browsers, internet servers and search engines. ● Concepts of Domain naming Systems and E mail communication. ● Introduction to video chatting tools and Social Networking concepts.
<p>Professional Skill - 70 Hrs;</p> <p>Professional Knowledge - 20 Hrs</p>	<p>8. Develop web pages using HTML and CSS.</p>	<p>Create simple static web pages using HTML tags</p> <p>128. Practice HTML</p> <ul style="list-style-type: none"> ● Practice with basic HTML elements (e.g., head, title, body), tag and attributes. ● Design simple web page with text, paragraph and line break using HTML tags ● Format text, change background colour and insert pictures in web page ● Design simple web page 	<p>Web Design Concepts</p> <ul style="list-style-type: none"> ● Concepts of Static and Dynamic Web pages. ● Introduction to HTML and various tags in HTML. ● Concepts of different controls used in Web Pages. ● Concepts of CSS and applying CSS to HTML. ● Introduction to open-source CMS viz, Joomla, Word press etc. and Web authoring tools viz. Kompozer, Word



		<p>with tables and lists.</p> <ul style="list-style-type: none">● Use marquees, hyperlinks and mail to link in designing web pages● Create frames, add style and design layout.● Display a web page within a web page using iframes.● Insert text, check and combo box in web page.● Design web page using password field, submit button● Reset button and radio button etc.● Design a web page adding flash file, audio and video files.● Design web page with forms and form controls using HTML tags <p>129. Create simple static web pages using CSS</p> <ul style="list-style-type: none">● CSS syntax, Adding colors, fonts, backgrounds, images borders, text alignment, text transformation, Lists etc.● Using types of CSS: Internal, inline and external in web page.● Adding a Navigation Bars(vertical/horizontal bars)● CSS drop downs & Forms● CSS counters and website layout, Multiple backgrounds & Putting the stylesheet in a separate file● CSS Animations & CSS Buttons	Press, Front Page etc.
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<p>Professional Skill - 170 Hrs;</p> <p>Professional Knowledge - 40 Hrs</p>	<p>9. Develop web pages using JavaScript.</p>	<ul style="list-style-type: none"> ● Create webpage using bootstrap. <p>JavaScript</p> <p>Embed JavaScript in HTML Pages</p> <p>130. Practicing the JavaScript in creating dynamic HTML pages.</p> <p>131. Embed JavaScript in HTML to Display Information in Web pages.</p> <p>132. Use error handling techniques in JavaScript.</p> <p>133. Use objects and classes in JavaScript.</p> <p>134. Describe Animation and Multimedia using JavaScript.</p> <p>Create a dynamic website using an open-source tool</p> <p>135. Develop dynamic HTML pages using JavaScript.</p> <p>Deploy a simple web project</p> <p>136. Deploy web project using IIS.</p> <p>137. Create a github repository.</p> <p>138. Create portfolio and upload.</p> <p>139. Create website using CMS.</p>	<p>Introduction to JavaScript</p> <ul style="list-style-type: none"> ● Introduction to Programming and Scripting Languages. ● Introduction to JavaScript and its application for the web. ● Introduction to Web Servers and their features. ● JavaScript Basics – Data types, Variables, Constants and Conversion between data types. ● Arithmetic, Comparison, Logical Operators in JavaScript. Operator precedence. ● Program Control Statements and loops in JavaScript. ● Arrays in JavaScript – concepts, types and usage. ● The String data type in JavaScript. Introduction to String, Math and Date. ● Introduction to Functions in JavaScript. ● Built in JavaScript functions overview. ● Concepts of Pop Up boxes in JavaScript. ● Introduction to the Document Object Model. ● Concepts of using Animation and multimedia files in JavaScript. ● Introduction to github
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<p>Professional Skill – 20 hrs; Professional Knowledge - 10 Hrs.</p>	<p>10. Browse, select, and transact using E-commerce websites.</p>	<p>Browse e-Commerce sites to identify products & services 140. Demonstrate e-Commerce sites. 141. List features of e-commerce sites. 142. Use e-commerce sites to source an item. Shop online 143. Undertake transactions on an e-commerce site. Manage e-commerce operations 144. Add products to an ecommerce website. 145. Practice order processing. 146. Practice payment processing. 147. Identify common security issues.</p>	<p>and CMS</p> <p>e-Commerce</p> <ul style="list-style-type: none"> ● Introduction to E Commerce and advantages. ● Building business on the net. ● Payment and Order Processing, Authorization, Chargeback and other payment methods. ● Security issues and payment gateways.
<p>Professional Skill – 20 hrs; Professional Knowledge - 10 Hrs.</p>	<p>11. Explain Cloud concepts & services and Describe Application Development Life Cycle.</p>	<p>Cloud Computing Working with Cloud Services 148. Practice with IaaS using free cloud services. 149. Practice with PaaS using free cloud services. 150. Practice with SaaS using free cloud services. Web hosting in Cloud 151. Host a website in a free cloud. Develop an application and perform the Application Development Life Cycle 152. Identify Phases of the Application Development Life Cycle. 153. Describe Roles in each of the phases of Application Development Life Cycle. 154. Create VM using open stack</p>	<p>Introduction to Cloud Computing</p> <ul style="list-style-type: none"> ● Benefits of cloud services, different categories. ● Resources available in cloud. <p>Explain the Application Development Life Cycle</p> <ul style="list-style-type: none"> ● Identify Phases of the Application Development Life Cycle. ● Describe Roles in each of phases of the Application Development Life Cycle. ● Open stack



<p>Professional Skill – 20 hrs; Professional Knowledge - 10 Hrs.</p>	<p>12. Secure information from Internet by using cyber security concept.</p>	<p>155. Protect information, computers and networks from viruses, spyware and other malicious code</p> <ul style="list-style-type: none"> ● Explain Cyber security ● Secure computers & the network ● Reduce cyber security threats ● Secure a Wi-Fi Network ● Use Anti-Virus software ● Perform back-ups of files, data & information <p>156. Explain compliance with IT Act</p> <ul style="list-style-type: none"> ● Identify steps for information privacy. ● Identify common cybercrimes and penalties applicable. 	<p>Cyber Security</p> <ul style="list-style-type: none"> ● Overview of Information Security, SSL, HTTPS, Security threats- malware, phishing, social engineering, information Security vulnerability and Risk management. ● Introduction to Directory Services, Access Control, Security, Privacy protection, Audit and Security. ● Introduction to IT Act and penalties for cybercrimes.
<p>Professional Skill – 20 hrs; Professional Knowledge - 10 Hrs.</p>	<p>13. Perform Effective office automation using AI tools.</p>	<p>157. Use AI Tools for Documents 158. Use AI Tools for Spreadsheet 159. Use AI Tools for Presentation 160. Use AI Tools for code editor 161. Use Generative AI tools for generating Text/image/video/audio</p>	<p>Concept of AI Concept of Generative AI platform How to write prompts for various tasks Ethical use of AI Responsible AI</p>
<p>Professional Skill - 70 Hrs; Professional Knowledge - 20 Hrs.</p>	<p>14. Write programs using Python language.</p>	<p>Programming language (Python) Use Python from command line 162. Install, set up the environment & run Python. 163. Use Command Line and IDE to create and execute a python program. Perform Operations using Data Types and Operators 164. Write and test a python program to demonstrate</p>	<p>Programming language (Python)</p> <ul style="list-style-type: none"> ● Introduction to Python History ● Features, Setting up path Basic Syntax, Comments, Variable ● Different Data Types ● Casting, string, Boolean ● Python Operators ● Conditional Statements ● Looping ● Control Statements,



		<p>print statement, comments, different types of variables.</p> <p>165. Write and test a python program to perform data and data type operations, string operations, date, input and output, output formatting and operators.</p> <p>166. Determine the sequence of execution based on operator precedence.</p> <p>Control Flow with Decisions and Loops</p> <p>167. Construct and analyze code segments that use branching statements.</p> <p>168. Construct and analyze code segments that perform iteration.</p> <p>Document and Structure Code</p> <p>169. Document code segments using comments and documentation strings.</p> <p>170. Construct and analyze code segments that include List comprehensions, tuple, set and Dictionary comprehensions.</p> <p>Perform Operations Using Modules and Tools</p> <p>171. Perform basic operations using built-in modules.</p> <p>172. Solve complex computing problems by using built-in modules.</p> <p>173. Write a python program to take a snapshot of a webpage and upload into a word file.</p>	<p>String Manipulation, Lists, Tuple, sets</p> <ul style="list-style-type: none"> ● Dictionaries ● Arrays ● Iterators, modules, dates, math, ● Modules, Input and Output. ● File handling.
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		174. Design a dashboard (webpage) using python.	
Industrial Visit/Project work			
Broad Area:			
a) Create and host a web site of at least 6 web pages using JavaScript & CSS containing interactive objects, functions etc.			
b) Create a project with Spreadsheet on Payroll Systems.			
c) Create a database with MySQL on Library management system.			
d) Create project in Python programming language.			

SYLLABUS FOR CORE SKILLS

1. Employability Skills (Common for all CTS trades) (120 Hrs.)

Learning outcomes, assessment criteria, syllabus and Tool List of Employability Skills is provided separately in www.cstaricalcutta.gov.in / www.bharatskills.gov.in / www.dgt.gov.in.

LIST OF TOOLS & EQUIPMENT			
COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (for Batch of 24 Candidates)			
S No.	Name of the Tools and Equipment	Specification	Quantity
A. Trainees Tools/ Equipment			
1.	Desktop Computer	CPU: 64 Bit, 7 th Generation or higher, i3 or latest processor, Speed: 3 GHz or Higher. RAM: 8 GB or higher, 1TB HDD/SDD, Wi-Fi Enabled. Network Card: Integrated Gigabit Ethernet, with USB Mouse, USB Keyboard and Monitor (as available in the market). Or All in one PC with same above configuration Pre-installed Operating System latest version and Antivirus compatible with trade related software.	24 Nos.
2.	Laptop	4 th Gen Ci5 or higher Processor, 4GB RAM, 1TB Hard Disk, Win 10/latest Preloaded Licensed OS, 2GB Graphics Card, Standard Ports and Connectors.	01 No.
3.	Wi-Fi Router	With Wireless Connectivity	02 No.
4.	Switch	24 Port	02 Nos.
5.	Structured cabling in Lab	To enable working with Wired Networks for Practical	As required
6.	Internet Connectivity	Broadband connection with min. 2 Mbps speed/Optical Fiber	As required
7.	Registered Domain	At least 100 MB Web Space	As required
8.	All in One printer	A4 size	01 No.
9.	Digital Web Cam	High Resolution (3.1 Megapixel or higher)	04 Nos.
10.	Smart Interactive Board	68" or above	02 No.
11.	Online UPS	5 KVA	01 No.
12.	Crimping Tool	RJ-45	05 Nos.
13.	Network Rack	4U for 24 ports	02 Nos.
14.	Digital Multimeters	3.5-digit handheld type.	04 Nos.
15.	Screwdriver Set	Standard	04 Sets
16.	Mini Dongle for Bluetooth devices Connection	USB	04 Nos.
17.	Headphone & mic. set	Wired	05 Nos.
18.	Sound System	2:1	01 No.
19.	External Hard Disk	1 TB	02 Nos.



20.	Patch Panel	24 Port	02 Nos.
21.	LAN Tester	UTP cat5 cable tester (RJ 45)	10 Nos.
22.	Punching Tool	for punching RJ 45 socket with cat 5 cable	05 Nos.
B. Software			
23.	Office automation software	latest version available at the time of procurement	25 Licenses
24.	Antivirus for – clients / workstations in profile	As required	25 Licenses
25.	Open Office or equivalent	Latest version	Open-source software
26.	Python	Latest Version	Open-source software
27.	GIMP or equivalent	Latest version	Open-source software
28.	LINUX OS	Latest version	Open-source software
29.	E Commerce Simulation Software	Latest version	Open-source software
30.	Web Server	HTTP Web server / XAMPP or any other similar server	Open-source software
31.	MySQL	Latest version	Open-source software
32.	Power BI	Desktop version	25 licenses
33.	VS Code editor		Open-source software
C. List Of Other Items/Furniture			
34.	Chair and table for the instructor	As required	01 each (for classroom & laboratory)
35.	Dual Desk or Chair and Tables for Trainees	As required	12 / 24 Nos.
36.	Computer table/Work benches	As required	For 24 Computers
37.	Operators chair	As required	24 Nos.
38.	Air conditioner	As required	As required
39.	White Board	As required	01 No.
40.	Almirah	As required	01 No.
41.	Fire Extinguisher	Arrange all proper NOCs and equipments from Municipal/ Competent authorities.	

The DGT sincerely acknowledges contributions of the Industries, State Directorates, Trade Experts, Domain Experts, trainers of ITIs, NSTIs, faculties from universities and all others who contributed in revising the curriculum.

Special acknowledgement is extended by DGT to the following expert members who had contributed immensely in this curriculum.

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15.	Dr. Sanjay Adiwai, Scientist E	C-DAC Bangalore	Member
16.	Rama N. S, Advisor	ELCIA Bangalore	Member
17.	Shankargouda S. P	ELCIA Bangalore	Member
18.	Dr. Vishal. C, Associate Professor	IFIM College, Bangalore	Member
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21.	Shashidhana HN	TechVoc Finesse Consultancy	Member
22.	Denikar. A. Kattar, Senior Manager	TTK Services PVT. LTD.	Member



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25.	G. Jayakumar, Manager (Trg.)	NTTF, Electronics City, Bangalore	Member
26.	Nikhil Eshwar	Goa Institute of Management	Member
27.	Dr. Joydeep Roy Choudhury, Director	Techno Media Software Solutions Pvt Ltd	Member
28.	Savitha. V, Junior Training Officer	Government ITI for Women Bangalore	Member
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30.	Poojitha K	Electronics City Industries Association (ELCIA)	Member
31.	K A Madusri	Electronics City Industries Association (ELCIA)	Member
32.	Dinesh K. P, Program Manager	CISCO, BLR, ORR	Member
33.	Akhilesh Pandey, A. D	CSTARI, Kolkata	Member
34.	P.K. Bairagi, T.O.	CSTARI Kolkata	Member
35.	Budhaditya Biswas, T.O.	CSTARI Kolkata	Member
36.	Jinendran PK, J.C.	CSTARI Kolkata	Member
37.	Makarand Joshi, Solutions Manager	Grok Learning Private Limited	Member
38.	Reema Nandi, Associate Manager	Accenture	Member
39.	Satish Thakare, Chief Technology Officer (CTO)	Sciencetech Technologies Pvt. Ltd.	Member
40.	Dr Pratik J Mhatre, R&D & Master Trainer	Grok Learning Private Limited	Member
41.	Karan Bhoyar, Development engineer	Grok learning pvt ltd	Member
42.	Akshay Jadhav, Sr Design Engineer	Tata Technologies	Member

ABBREVIATIONS	
CTS	Craftsmen Training Scheme
ATS	Apprenticeship Training Scheme
CITS	Craft Instructor Training Scheme
DGT	Directorate General of Training
MSDE	Ministry of Skill Development and Entrepreneurship
NTC	National Trade Certificate
NAC	National Apprenticeship Certificate
NCIC	National Craft Instructor Certificate
LD	Locomotor Disability
CP	Cerebral Palsy
MD	Multiple Disabilities
LV	Low Vision
HH	Hard of Hearing
ID	Intellectual Disabilities
LC	Leprosy Cured
SLD	Specific Learning Disabilities
DW	Dwarfism
MI	Mental Illness
AA	Acid Attack
PwD	Person with disabilities

