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

COMPETENCY BASED CURRICULUM

COMPUTER OPERATOR AND PROGRAMMING ASSISTANT (COPA)

(Duration: One Year)
Revised in July 2022

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL- 3

SECTOR – IT & ITeS

Directorate General of Training

COMPUTER OPERATOR AND PROGRAMMING ASSISTANT

(Non-Engineering Trade)

(Revised in July 2022)

Version: 2.0

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL - 3

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training

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CONTENTS

1. COURSE INFORMATION

During the one-year duration of Computer Operator and Programming Assistant trade a candidate is trained on professional skill, professional knowledge and Employability skill related to job role. In addition to this a candidate is entrusted to undertake project work and extracurricular activities to build up confidence. The Broad components covered under the 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 commands, Windows and Linux interface and its related software installation process. Trainees will work with MS Office package to create word document, practice with excel sheet and get idea to create a good power point presentation, maintain database with MS Access. They will set up and configure a network system of an organization. They will understand and able to work on Advanced excel 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. They will be able to develop programmes using Python.

2. TRAINING SYSTEM

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" trade under CTS is one of the most popular courses delivered nationwide through 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 Core area (Employability Skills) imparts requisite core skill, knowledge and life skills. After passing out the training program, the trainee is awarded National Trade Certificate (NTC) by DGT which is recognized worldwide.

Trainee needs to demonstrate broadly that they are able to:

- Read and interpret technical parameters/ documentation, plan and organize work processes, identify necessary materials and tools.
- Perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations.
- Apply professional knowledge & employability skills while performing the job and repair & maintenance work.
- Check the job/ assembly as per drawing for functioning identify and rectify errors in job/ assembly.
- Document the technical parameter 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 programme in different types of industries leading to 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**

Every year 150 hours of mandatory OJT (On the Job Training) at nearby industry, wherever not available then group project is mandatory.

On the Job Training (OJT)/ Group Project	150

Trainees of one-year or two-year trade can also opt for optional courses of up to 240 hours in each year for 10th/ 12th class certificate along with ITI certification, or, add on short term courses

2.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his 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 must maintain individual trainee portfolio as detailed in assessment guideline. The marks of internal assessment will be as per the formative assessment template provided on 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 Controller of examinations, DGT as per the guideline. The pattern and marking structure are being notified by DGT from time to time. **The learning outcome and assessment criteria will be basis for setting question papers for final assessment. The examiner during final examination will also check** 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 percent for Trade Practical and Formative assessment is 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 assessment. Due consideration should be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scarp/wastage as per procedure, behavioral attitude, sensitivity to environment and regularity in training. The sensitivity towards 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

Evidence and records of internal (Formative) assessments are to be preserved until forthcoming year examination for audit and verification by examination body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Marks in the range of 60 -75% to be allotted during assessment	
For performance in this grade, the candidate with occasional guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of an	• Demonstration of good skills and accuracy in the field of work/ assignments. • A fairly good level of neatness and consistency to accomplish job activities.

acceptable standard of craftsmanship.	• Occasional support in completing the task/ job.
(b)Marks in the range of above75% - 90% to be allotted during assessment	
For this grade, the candidate, with little guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of a reasonable standard of craftsmanship.	• 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.
(c) Marks in the range of above 90% to be allotted during assessment	
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.	• 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

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

Reference NOS:

i) SSC/N3022
ii) SSC/N0503
iii) SSC/N0501
iv) SSC/N9401
v) SSC/N9402
vi) SSC/N9403
vii) SSC/N9404
viii) SSC/N9405
ix) SSC/N9406
x) SSC/N9407

4. GENERAL INFORMATION

Name of the Trade	**COMPUTER OPERATOR AND PROGRAMMING ASSISTANT**
Trade Code	DGT/1003
NCO - 2015	4131.0600, 3514.0300, 2513.0101, 2513.0201, 2523.0100
NOS Covered	SSC/N3022, SSC/N0503, SSC/N0501
NSQF Level	Level-3
Duration of Craftsmen Training	One Year (1200 Hours + 150 hours OJT/Group Project)
Entry Qualification	Passed 10th 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. metre
Power Norms	5.5 KW
Instructors Qualification for	
1. Computer Operator And Programming Assistant Trade	B.Voc/Degree in Computer Science/ IT from AITCE/UGC Recognized University with one year expreience in the relevant field. OR Post Graduate in Computer Science /Computer Application / IT from UGC Recognized University or NIELIT B Level with one year expreience in the relevant field. OR Bachelor in Computer Science / Computer Application / IT OR PGDCA from UGC recognized University or NIELIT A Level with two year expreience in the relevant field. OR 03 years Diploma in Computer Science / IT from recognized Board/ Institute or relevant Advanced Diploma (Vocational) (ADIT) from DGT with two year expreience in the relevant field. OR

	NTC/NAC in COPA or any trade in IT-ITeS sector trade with three year expreience in the relevant field. **Essential Qualification:** Relevant Regular / RPL variants of National Craft Instructor Certificate (NCIC) under DGT.
2. Employability Skill	MBA/ BBA / Any Graduate/ Diploma in any discipline with Two years' experience with short term ToT Course in Employability Skills from DGT institutes. (Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above) OR Existing Social Studies Instructors in ITIs with short term ToT Course in Employability Skills from DGT institutes.
3. Minimum Age for Instructor	21 Years
List of Tools & 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 OUTCOMES

1. Install and setup operating system and related software in a computer following safety precautions. (NOS: SSC/N3022)
2. Create, format and edit document using word processing application software. (NOS: SSC/N3022)
3. Create, format, edit and develop a workbook by using spreadsheet application software. (NOS: SSC/N3022)
4. Create and customize slides for presentation. (NOS: SSC/N3022)
5. Create and manage database file using MySQL. (NOS: SSC/N9401)
6. Install, setup/configure, troubleshoot and secure computer network including Internet. (NOS: SSC/N3022)
7. Develop web pages using HTML and CSS. (NOS: SSC/N0503, SSC/N0501)
8. Develop web pages using Java Script. (NOS: SSC/N0503, SSC/N0501)
9. Create workbooks with advanced formulae, macros, charts, pivot tables and demonstrate ability to use Power tools. (NOS: SSC/N9402)
10. Browse, select and transact using E commerce websites. (NOS: SSC/N9403)
11. Secure information from Internet by using cyber security concept. (NOS: SSC/N9404)
12. Explain Cloud concepts & services. (NOS: SSC/N9405)
13. Write programs using Python / Java language. (NOS: SSC/N9406, SSC/N9407)

6. ASSESSMENT CRITERIA

LEARNING OUTCOMES	ASSESSMENT CRITERIA
1. Install and setup operating system and related software in a computer following safety precautions. (NOS: SSC/N3022)	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. (NOS: SSC/N3022)	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, format, edit and develop a workbook by using spreadsheet application software. (NOS: SSC/N3022)	Identify Excel 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.
4. Create and customize slides for presentation. (NOS: SSC/N3022)	Create simple presentations
	Create presentations with tables, images & graphic elements
	Create presentations with audio & video elements with transitions
5. Create and manage database file by using MySQL. (NOS: SSC/N9401)	Create simple database on Relational Database in MySQL using data validation, filters, sorting, query.
	Import, Export, Link, Backup and Retrieve database in MySQL.
	Create query with functions, joins, sub-query.

6. Install, setup/configure, troubleshoot and secure computer network including Internet. (NOS: SSC/N3022)	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.
7. Develop web pages using HTML, CSS . (NOS: SSC/N0503, SSC/N0501)	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.
8. Develop web pages using Java Script. (NOS:SSC/N0503, SSC/N0501)	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.
9. Create workbooks with advanced formulas, macros, charts, pivot tables and demonstrate ability to use Power tools. (NOS: SSC/N9402)	Create workbooks with advanced functionalities in Excel.
	Create advanced charts & Pivot Tables.
	Create output files using specific Power tool.
10. Browse, select and transact using E-commerce websites. (NOS: SSC/N9403)	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. Secure information from Internet by using cyber security concept. (NOS: SSC/N9404)	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.
12. Explain Cloud concepts & services and Describe Application Development Life Cycle. (NOS: SSC/N9405)	Create cloud concepts.
	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.
13. Write programs using Python / Java language. (NOS: SSC/N9406, SSC/N9407)	Install Python / Java.
	Perform operations on Python / Java ; construct simple code and document these.
	Perform Document code segments using comments and documentation strings.
	Perform operations using in-built modules / libraries.

7. TRADE SYLLABUS

SYLLABUS FOR COMPUTER OPERATOR AND PROGRAMMING ASSISTANT			
DURATION: ONE YEAR			
Duration	**Reference Learning Outcome**	**Professional Skills (Trade Practical) With Indicative Hours**	**Professional Knowledge (Trade Theory)**
Professional Skill - 94 Hrs; Professional Knowledge - 32 Hrs	Install and setup operating system and related software in a computer following safety precautions. (Mapped NOS: SSC/N3022)	**Safe working practices (10 Hrs)** 1. Visit COPA Lab. of the institutes and locate the electrical connections with computer system setup. (3 Hrs) 2. Identifying safety symbols and hazard identification. (3 Hrs) 3. Practice safe methods of fire fighting in case of electrical fire. (2 Hrs) 4. Use of fire extinguishers. (2Hrs) **Assemble a Desktop PC (8 hrs)** 5. Identify computer peripherals and internal components of a desktop computer. (4 Hrs) 6. Assemble components of desktop computer. (4 Hrs) **Using Windows Operating Systems (20 hrs)** 7. Practice on Windows interface and navigating windows. (3 Hrs) 8. Practice on managing files and folders using removable drives. (4 Hrs) 9. Customize the desktop (2 hrs) 10. Settings and manage user accounts. (1 Hr) 11. View system properties and control panel details. (3 Hrs) 12. Work with keyboard shortcut commands. (4 Hrs) 13. Print and scan document using different commands. (3 Hrs) **Computer basics and Software Installation (20 Hrs)**	**Introduction to Computers (3 Hrs)** • 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 (4 Hrs)** • 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 (9 Hrs)** • Introduction to operating System • Main features of Windows OS

		14. View the BIOS settings and their modifications. (3 Hrs) 15. Install Windows operating system. (4 Hrs) 16. Format hard disk and create partition. (3 Hrs) 17. Identify and rectify common hardware and software issues during OS installation. (3 Hrs) 18. Install necessary application software for Windows i.e. Office Package, PDF Reader, Media Player etc. (2 Hrs) 19. Configure Bluetooth and Wi-Fi settings. (1 Hr) 20. Install Drivers for printer, scanner, webcam and DVD etc. (2 Hrs) 21. Burn data, video and audio files on CD/DVD using application software. (2 Hrs) **DOS Command Line Interface (9Hrs)** 22. Use basic DOS commands for directory listing. (5 Hrs) 23. Manage files and folders using DOS commands. (4 Hrs) **Install Ubuntu Linux operating system and execute basic Linux commands (27 Hrs)** 24. Installation of Ubuntu Linux operating system (6 Hrs) 25. Install necessary application software for Linux i.e. Office Package, PDF Reader, Media Player etc. (4 Hrs) 26. Use Basic Linux commands for directory listing, file and folder management, password etc. (6 Hrs) 27. Use the Linux graphical user interface for file and folder management, exploring the system etc. (6 Hrs) 28. Customize desktop settings and manage user accounts in Linux. (3 Hrs)	• Concept of various shortcut commands. **Introduction to the booting process (6 Hrs)** • Introduction to various types of memories and their features. • Basic Hardware and software issues and their solutions. • Usage of Application software and Antivirus. **Introduction to DOS Command Line Interface & Linux Operating Systems (10 Hrs)** • 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.

		29. View system properties and manage system setting in Linux. (2 Hrs)	
Professional Skill – 47 Hrs.; Professional Knowledge - 14 Hrs	Create, format, and edit document using word processing application software. (Mapped NOS: SSC/N3022)	**Using Word Processing Software (47 hrs)** **Manage documents (11 Hrs.)** 30. **Navigate within documents (2 Hrs)** • Search for text • Link to locations within documents • Move to specific locations and objects in documents • Show and hide formatting symbols and hidden text 31. **Format documents (4.6 Hrs)** • Set up document pages • Apply style sets • Insert and modify headers and footers • Configure page background elements 32. **Save and share documents (2 Hrs)** • Save documents in alternative file formats • Modify basic document properties • Modify print settings • Share documents electronically 33. **Inspect documents for issues (2.4 Hrs)** • Locate and remove hidden properties and personal information • Locate and correct accessibility issues • Locate and correct compatibility issues **Format documents (8 Hrs.)** 34. **Insert text and paragraphs (2 Hrs)** • Find and replace text	**Using Word Processing Software (14 Hrs)** • 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.

		• Insert symbols and special characters 35. **Format text and paragraphs (3 Hrs)** • Apply text effects • Apply formatting by using Format Painter • Set line and paragraph spacing and indentation • Apply built-in styles to text • Clear formatting 36. **Create and configure document sections (3 Hrs)** • Format text in multiple columns • Insert page, section, and column breaks • Change page setup options for a section **Manage tables and lists (9.5 Hrs)** 37. **Create tables (3 Hrs)** • Convert text to tables • Convert tables to text • Create tables by specifying rows and columns 38. **Modify tables (3 Hrs)** • Sort table data • Configure cell margins and spacing • Merge and split cells • Resize tables, rows, and columns • Split tables • Configure a repeating row header 39. **Create and modify lists (3.5 Hrs)** • 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 **Create and manage references (3 Hrs.)** 40. **Create and manage reference elements (1.4 Hrs)** • Insert footnotes and endnotes • Modify footnote and endnote properties • Create and modify bibliography citation sources • Insert citations for bibliographies 41. **Create and manage reference tables (1.6 Hrs)** • Insert tables of contents • Customize tables of contents • Insert bibliographies **Manage graphic elements (8.5 Hrs.)** 42. **Insert illustrations and text boxes (3 Hrs)** • Insert shapes • Insert pictures • Insert 3D models • Insert Smart Art graphics • Insert screenshots and screen clippings • Insert text boxes 43. **Format illustrations and text boxes (3 Hrs)** • Apply artistic effects • Apply picture effects and picture styles • Remove picture backgrounds • Format graphic elements • Format SmartArt graphics • Format 3D models 44. **Add text to graphic elements (1 Hr)** • Add and modify text in text boxes • Add and modify text in shapes	

		• Add and modify SmartArt graphic content 45. **Modify graphic elements (1.5 Hrs)** • Position objects • Wrap text around objects • Add alternative text to objects for accessibility **Manage document collaboration (3.5 Hrs.)** 46. **Add and manage comments (1 Hrs)** • Add comments • Review and reply to comments • Resolve comments • Delete comments 47. **Manage change tracking (2.5 Hrs)** • Track changes • Review tracked changes • Accept and reject tracked changes • Lock and unlock change tracking **Manage Mailings (3.5 Hrs)** 48. **Perform mail merge (3.5 Hrs)** • Create envelopes • Create labels • Create a new mailing list • Perform mail merge using an existing list	
Professional Skill - 72 Hrs.; Professional Knowledge - 18 Hrs	Create, format, edit and develop a workbook by using spreadsheet application software. (Mapped NOS: SSC/N3022)	**Spread Sheet Application (72 Hrs)** **Manage Worksheets and Workbooks (12 Hrs.)** 49. **Open files in MS Excel (1.5 Hrs)** • Open MS Excel • Create a new Excel file • Create a new Excel file from a template • Open an existing Excel file 50. **Import data (1.5 Hrs)** • Import data from txt files • Import data from csv files	**Spread Sheet Application (18 Hrs)** • Introduction to Excel features and Data Types. • Cell referencing and linking Sheets. • Introduction to various functions in all categories of Excel.

		51. **Navigate within workbooks (2 Hrs)** • Search data • Navigate to named cells, ranges or workbook elements • Insert and remove hyperlinks 52. **Format worksheets and workbooks (2 Hrs)** • Modify page setup • Adjust row height and column width • Customize headers and footers 53. **Customize options and views (3 Hrs)** • Display and modify content in different views • Freeze rows and columns • Change window views • Modify basic workbook properties • Display formulas 54. **Configure content for collaboration (2 Hrs)** • Set a print area • Save workbooks in alternative file formats • Configure print settings **Manage data cells and ranges (12 Hrs.)** 55. **Manipulate data (3 Hrs)** • Paste data by using special paste options • Fill cells by using Auto Fill • Insert and delete multiple columns or rows • Insert and delete cells 56. **Format cells and ranges (5 Hrs)** • Merge and Unmerge cells • Modify cell alignment, orientation and indentation • Format cells using Format Painter • Wrap text within cells • Apply number formats	• Concepts of sorting, filtering and validating data. • Analyzing data using charts, data tables, pivot tables, goal seek and scenarios

		• Apply cell formats from the Format cells dialog box • Apply cell styles • Clear cell formatting 57. **Define and reference named ranges (4 Hrs)** • Define a named range • Name a table • Summarize data visually Insert spark lines • Apply built in conditional formatting • Remove conditional formatting **Manage tables and table data (12 Hrs.)** 58. **Create and format tables (4 hrs)** • Create excel tables from cell ranges • Apply table styles • Convert tables to cell ranges 59. **Manage tables and table data (5 Hrs)** • Add or remove table rows and columns • Configure table style options • Insert and configure total rows 60. **Filter and sort table data (3 Hrs)** • Filter records • Sort data by multiple columns **Perform operations using formulas and functions (12 Hrs.)** 61. **Insert references (3 Hrs)** • Insert relative, absolute and mixed references • Reference named ranges and named tables in formulas 62. **Calculate and transform data (5 Hrs)** • Perform calculations using AVERAGE(), MIN(), MAX() and SUM()	

		• Count cells by using COUNT(), COUNTIF() and COUNTBLANK() • Perform conditional operations by using the IF() function 63. **Format and modify text(4 Hrs)** • Format text using RIGHT(),LEFT() and MID() functions • Format text using UPPER(), LOWER() and LEN() functions • Format text using CONCAT() and TEXTJOIN() functions **Manage Charts (12 Hrs.)** 64. **Create Charts (3 Hrs)** • Create charts • Create chart sheets 65. **Modify charts (4 Hrs)** • Add data series to charts • Switch between rows and columns in source data • Add and modify chart elements • Add trend lines to chart 66. **Format charts (5 Hrs)** • Apply chart layouts • Apply chart styles • Add alternative text to charts for accessibility **Manage Pivot Tables (12 Hrs.)** 67. **Create Pivot Tables(12 Hrs)** • Create Pivot tables from cell ranges • Manipulate fields (columns) to get desired analysis • Use Filters for pivot tables • Represent data as Count, Sum, Average & % of row / column • Group data in Columns & rows for aggregate reports	
Professional Skill - 53 Hrs;	Create and customize slides for presentation.	**Power point Presentations (9.5 Hrs.)** 68. **Open files in MS PowerPoint (1 Hr)**	**Power point Presentations (13 Hrs.)**

Professional Knowledge - 13 Hrs	(Mapped NOS: SSC/N3022)	• Open MS PowerPoint • Create a new PowerPoint file • Create a new PowerPoint file from a template • Open an existing PowerPoint file 69. **Format PowerPoint Presentations (1.5 Hrs)** • Add slides • Add titles and text • Select slide layouts • Add PowerPoint templates • Duplicate slides 70. **Modify slide masters, handout masters, and note masters (2 Hrs)** • Change the slide master theme or background • Modify slide master content • Modify slide layouts 71. **Change presentation options and views (1.5 Hrs)** • Change slide size • Display presentations in different views 72. **Save and share PowerPoint Presentations (1.5 Hrs)** • Save presentations in alternative file formats • Configure different Print settings • Share presentations electronically 73. **Configure and present slide shows (1 Hr)** • Hide unwanted slides while presenting • Configure slide show options • Present slide shows by using Presenter View 74. **Prepare presentations for collaboration (1 Hrs)** • Protect presentations by using passwords	• 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. Fine tuning the presentation and good presentation technique

		• Export presentations to other formats **Format presentations (6.5 Hrs.)** 75. **Insert text and paragraphs (2 Hrs)** • Find and replace text • Insert symbols and special characters 76. **Format text and paragraphs (2 Hrs)** • Apply text effects • Apply formatting by using Format Painter • Set line and paragraph spacing and indentation • Apply built-in styles to text 77. **Create and configure sections (2.5 Hrs)** • Format text in multiple columns • Text and image presentation styles • Clear formatting **Manage tables and bulleted text (8 Hrs)** 78. **Create tables (3 Hrs)** • Insert tables in PowerPoint • Apply built-in table styles • Create tables by specifying rows and columns 79. **Modify tables (3 Hrs)** • Insert and delete table rows and columns • Configure cell margins and spacing • Merge and split cells • Resize tables, rows, and columns 80. **Create and modify bulleted text (2 Hrs)** • 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 **Create and manage reference elements (hyperlinks) (1.25 Hrs)** • Create hyperlinks within presentations • Create hyperlinks in presentations for files and other sources **Manage graphic elements (11.5 Hrs)** 81. **Insert illustrations and text boxes (3.5 Hrs)** • Insert shapes • Insert pictures • Insert SmartArt graphics • Insert screenshots and screen clippings 82. **Format illustrations and text boxes (4 Hrs)** • Apply artistic effects • Apply picture effects and picture styles • Remove picture backgrounds • Crop images • Format graphic elements • Format SmartArt graphics 83. **Add and modify text in graphic elements (4 Hrs)** • Add and modify text in text boxes • Add and modify text in shapes • Add and modify SmartArt graphic text • Create, insert and modify charts **Manage Audio & Video elements (6.5 Hrs)** 84. **Add Audio elements (2 Hrs)** • Import audio files in presentations • Configure audio playback options	

		85. **Add Video elements (4.5 Hrs)** • Import video files in presentations • Resize video to fit slide • Configure video playback options **Manage transitions and animations (9 Hrs)** 86. **Add slide transitions (5 Hrs)** • Add same slide transition for all slides • Set transition effect duration • Configure transition start and finish options • Customise select slide transitions 87. **Add animations (4 Hrs)** • 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 **Manage collaboration (0.75 Hrs)** 88. **Add and manage comments (0.75 Hrs)** • Add comments • Review and reply to comments	
Professional Skill - 53 Hrs.; Professional Knowledge - 13 Hrs	Create and manage database file by using MySQL. (Mapped NOS: SSC/N9401)	**Demonstrate on (15 Hrs.)** 89. Installation of MySQL. (1 Hr) 90. Troubleshooting basic installation issues. (1 Hr) 91. Creation and use of database. (3 Hr) 92. Designing of tables. (3 Hr) 93. Applying data integrity rules. (2 Hr) 94. Using the DDL, DCL and DML statements. (2 Hrs)	**Database Concepts (4 Hrs.)** • Concept of DBMS, RDBMS. • Data Models, Concept of DBA, Database Users. • Database Schema. • Designing Database using Normalization Rules. • Various data types Data integrity, DDL DML and DCL statements. • Enforcing Primary key and foreign key.

		95. Enforcing constraints, primary key and foreign key. (2 Hrs) 96. Adding indices to Tables. (1 Hr) **Demonstrate on (15 Hrs)** 97. Simple select queries. (5 Hrs) 98. Insert and delete queries Update queries. (10 Hrs) **Demonstrate on (23 Hrs)** 99. Using the Number, Date and Character functions. Joins and Functions (11.5 Hrs) 100. Joins, Group by, Having, Sub query. (11.5 Hrs)	• Adding Indices. **Queries (4 Hrs)** • Concepts of Transactions • ACID Property of Transaction Constraints. **Joins and Functions (5 Hrs)** • Joining of tables • Sub Queries • Functions used in query like sum, average, max, min, count etc.
Professional Skill - 68 Hrs; Professional Knowledge - 16 Hrs	Install, setup/ configure, troubleshoot, and secure computer network including Internet. (Mapped NOS: SSC/N3022)	**Computer Network (68 Hrs.)** **Set-up & configure a Computer Network (48 Hrs.)** 101. View Network connections. (2 Hrs) 102. Connect a computer to a network and share Devices i.e. Printers, files, folders and drives. (4 Hrs) 103. 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. (4 Hrs) 104. Practice IP Addressing and Subnet masking for IPV4/ IPV6 and pinging to test networks. (4 Hrs) 105. Configure Hub and Switch. (4 Hrs) 106. Set up and configure wired and wireless LAN in a Computer Lab within at least three computers. (6 Hrs)	**Communicating in a Connected World (12 Hrs.)** • 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 the global Internet. • Communicating in a Connected World Explain the concept of network communication.

		107. Use patch panel & I/O Box for wired LAN and installing & configuring Internet connection in a single PC and in a LAN. (6 Hrs) 108. Set up a proxy server/ DHCP Server with firewall. (8 Hrs) 109. Set up video conferencing using open-source software. (4 Hrs) 110. Use various tools (by open source /free) for network troubleshooting, maintenance and security for both Wired and Wireless (6 Hrs) 111. **Set up Internet access & communication (10 Hrs)** • Set-up internet connectivity • Set-up digital communication 112. **Use the Internet (10 Hrs)** • Browse the Internet • Use e-mail • Use Social Media • Use the phone for online activities	• 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, **Internet Concepts (4 Hrs)** • 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.
Professional Skill - 67 Hrs; Professional Knowledge - 17 Hrs	Develop web pages using HTML and CSS. (Mapped NOS: SSC/N0503, SSC/N0501)	**Create simple static web pages using HTML tags (67 Hrs.)** 113. **Practice HTML (46 Hrs)** • 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 with tables and lists.	**Web Design Concepts (17 Hrs)** • 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

		• 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 114. **Create simple static web pages using CSS (21 Hrs)** • CSS syntax, Adding colors, fonts, backgrounds, images borders, text alignment, text transformation, Lists etc. • 3 types of CSS • 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	viz, Joomla, Word press etc. and Web authoring tools viz. Kompozer, WordPress, Front Page etc.
Professional Skill - 173 Hrs; Professional Knowledge - 35 Hrs	Develop web pages using JavaScript. (Mapped NOS: SSC/N0503, SSC/N0501)	**JavaScript (173 Hrs)** **Embed JavaScript in HTML Pages (127 Hrs)** 115. Practicing the JavaScript in creating dynamic HTML pages. (53 Hrs) 116. Embed JavaScript in HTML to Display Information in Web pages. (31 Hrs)	**Introduction to JavaScript (35 Hrs)** • Introduction to Programming and Scripting Languages. • Introduction to JavaScript and its application for the web.

		117. Use error handling techniques in JavaScript. (11 Hrs) 118. Use objects and classes in JavaScript. (31 Hrs) 119. Describe Animation and Multimedia using JavaScript. (1 Hr) **Create a dynamic website using an open-source tool (40** Hrs**)** 120. Develop dynamic HTML pages using JavaScript. **Deploy a simple web project (6 Hrs)** 121. Deploy web project using IIS.	• 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 Java Script.
Professional Skill – 73 Hrs	Create workbooks with advanced formulas, macros, charts, pivot tables	**Data Visualization or analysis using Excel – (73 Hrs)** **Create advanced formulas and macros (24 Hrs)**	**Advanced Excel Concepts - Theory- (17 Hrs)**

Professional Knowledge - 17 Hrs.	and demonstrate ability to use Power tools. (Mapped NOS: SSC/N9402)	122. Create and modify simple macros (6 Hrs) 123. Perform form controls and create simple data entry form with macros. (6 Hrs) 124. Look up data by using functions. (6 Hrs) 125. Use advanced date functions.(6 Hrs) **Manage advanced charts and tables (21 hrs)** 126. Create and modify advanced charts. (10 Hrs) 127. Create and modify PivotTables. (11 Hrs) **Use Power Query and Power BI (24 Hrs)** 128. Create a Power Query, Power Query Function. Invoking the Power Query function and combining queries. Organize the workbook queries (12 Hrs) 129. Use Power BI for simple data visualizations. (12 Hrs) **Make a dashboard in Excel (4 Hrs)**	• MS excel revision (row, columns, basic formatting, insert menu, Print setup, etc.) and Look up introduction and functions • Types of references and cell naming • Excel Linkage Custom Format and Excel Protection • Tips and tricks • Pivot table and Pivot chart • Conditional formatting • Advanced Graphs • Power Queries
Professional Skill - 25hrs; Professional Knowledge - 10 Hrs.	Browse, select, and transact using E-commerce websites. (Mapped NOS: SSC/N9403)	**Browse e-Commerce sites to identify products & services (6.5 Hrs)** 130. Demonstrate e-Commerce sites. (1.5 Hrs) 131. List features of e-commerce sites. (2 Hrs) 132. Use e-commerce sites to source an item. (3 Hrs) **Shop online (4.5 Hrs)** 133. Undertake transactions on an e-commerce site. (4.5 Hrs) **Manage e-commerce operations (14 Hrs)** 134. Add products to an ecommerce website. (4 Hrs) 135. Practice order processing. (3 Hrs) 136. Practice payment processing. (4.5 Hrs)	**e-Commerce (10 Hrs)** • 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.

		137. Identify common security issues. (3.5 Hrs)	
Professional Skill - 20 Hrs Professional Knowledge - 10 Hrs.	Secure information from Internet by using cyber security concept. (Mapped NOS: SSC/N9404)	138. **Protect information, computers and networks from viruses, spyware and other malicious code (19 Hrs)** • Explain Cyber security (2 Hrs) • Secure computers & the network (5.5 Hrs) • Reduce cyber security threats (2 Hrs) • Secure a Wi-Fi Network (4 Hrs) • Use Anti-Virus software (3 Hrs) • Perform back-ups of files, data & information (2.5 Hrs) 139. **Explain compliance with IT Act (1 Hr)** • Identify steps for information privacy. (0.5 Hrs) • Identify common cybercrimes and penalties applicable. (0.5 Hrs)	**Cyber Security (10 Hrs)** • Overview of Information Security, SSL, HTTPS, Security threats, 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.
Professional Skill –25 Hrs; Professional Knowledge 15 Hrs.	Explain Cloud concepts &services and Describe Application Development Life Cycle. (Mapped NOS: SSC/N9405)	**Cloud Computing (15 Hrs)** **Working with Cloud Services (12 Hrs)** 140. Practice with IaaS using free cloud services. (4 Hrs) 141. Practice with PaaS using free cloud services. (4 Hrs) 142. Practice with SaaS using free cloud services. (4 Hrs) **Web hosting in Cloud (3 Hrs)** 143. Host a website in a free cloud. (3 Hrs) **Develop an application and perform the Application Development Life Cycle (10 Hrs)** 144. Identify Phases of the Application Development Life Cycle. (5 Hrs) 145. Describe Roles in each of the phases of Application	**Introduction to Cloud Computing (12 Hrs)** • Benefits of cloud services, different categories. • Resources available in cloud. **Explain the** Application Development Life Cycle **(3 Hrs)** • Identify Phases of the Application Development Life Cycle. • Describe Roles in each of phases of the Application Development Life Cycle.

		Development Life Cycle. (5 Hrs)	

To be selected either "Programming in Python" or "Programming in Java" as Elective Module for COPA.

COPA - Elective Module – I		**Programming in Python**	
Professional Skill - 70 Hrs; Professional Knowledge - 30 Hrs.	Write programs using Python language. (Mapped NOS: SSC/N9406)	**Programming language (Python)** **Use Python from command line (7 Hrs)** 1. Install, set up the environment & run Python. (3 Hrs) 2. Use Command Line and IDE to create and execute a python program. (4 Hrs) **Perform Operations using Data Types and Operators (15 Hrs)** 3. Write and test a python program to demonstrate print statement, comments, different types of variables. (5 Hrs) 4. Write and test a python program to perform data and data type operations, string operations, date, input and output, output formatting and operators. (5 Hrs) 5. Determine the sequence of execution based on operator precedence. (5 Hrs) **Control Flow with Decisions and Loops (20hrs)** 6. Construct and analyze code segments that use branching statements. (10 Hrs) 7. Construct and analyze code segments that perform iteration. (10 Hrs) **Document and Structure Code (18 Hrs)**	**Programming language (Python) (30 Hrs)** • 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, String Manipulation, Lists, Tuple, sets • Dictionaries • Arrays • Iterators, modules, dates, math, • Modules, Input and Output.

		8. Document code segments using comments and documentation strings. (3 Hrs) 9. Construct and analyze code segments that include List comprehensions, tuple, set and Dictionary comprehensions. (16 Hrs) **Perform Operations Using Modules and Tools (10 Hrs)** 10. Perform basic operations using built-in modules. (5 Hrs) 11. Solve complex computing problems by using built-in modules. (5 Hrs)	

COPA - Elective Module – II		**Programming in JAVA**	
Professional Skill - 70 Hrs; Professional Knowledge - 30 Hrs.	Writing programs using JAVA. (Mapped NOS:SSC/N9407)	**Object Oriented Programming and JAVA Language (15 Hrs)** 1. Installing JAVA. 2. Setting the Class path. 3. Writing and Executing a simple JAVA Program to display “Hello”. Demonstrate writing JAVA programs: 4. Use of various data types in JAVA. 5. Use of various operators in JAVA. 6. Create and use of Local, Instance and Class variables. 7. Read text from the keyboard using scanner class read text from the keyboard using console class.	Explain the following: • Object Oriented Programming with Core Java • Java Programming features • JVM, Byte codes and Class path • Java Program Development • Compilation and Execution of JAVA programs • Basic JAVA language elements – keywords, comments, data types and variables. • JAVA Arithmetic, Assignment, Relational, Logical, Increment /

			Decrement operators and expressions. • JAVA String Operators • JAVA Input and Output streams, System in, System out. • Input using Scanner class and Console class methods. (10Hrs.)
		JAVA Program Flow Control (20 Hrs) Demonstrate writing JAVA programs: 8. Use of the if and if … else statements. 9. Use of the Switch statement. 10. Use of the Do … While and while – do loops. 11. Use of the For Loop. 12. Use of the Break and Continue Keywords. 13. Use of the JAVA Numbers Class methods. 14. Use of the JAVA Character Class methods. 15. Use of the JAVA String Class methods. 16. Create and use of arrays.	Explain the following: • Decision making and flow control using if…then, if then else, nested if, switch case and the conditional ternary operators in JAVA. • Loop control flow using while – do, do – while loops, for loop, using the break, continue statements. • Terminating the JAVA program. JAVA Number, Character and String Classes. Arrays in JAVA. (6Hrs.)
		JAVA Classes, Overloading and Inheritance (20 Hrs) Demonstrate writing JAVA programs: 17. Create and use of simple classes, objects and methods in JAVA. 18. Pass data and Objects to Methods.	Explain the following: • JAVA Objects, Classes and Methods. • Passing data and objects as parameters to methods. • Method Overloading. • Constructors and

		19. Return data and Objects from Methods. 20. use of constructors in JAVA. 21. Create and use of Overloaded methods in JAVA. 22. Override methods in JAVA. 23. Create and use of Super class, Sub class in JAVA.	Overloaded constructors. • Inheritance in JAVA. • Method Overriding in JAVA. (8Hrs.)
		Abstract Classes and Interfaces in JAVA (15 Hrs) Demonstrate writing JAVA programs: 24. Create and use virtual methods. 25. Create abstract classes and methods. 26. Create interfaces in JAVA. 27. Override methods in JAVA. 28. Create and implement an interface. 29. Extend interfaces in JAVA. 30. Create and use a package in JAVA. **Troubleshooting Java issues** Download and Install Java, Check and Verify Java Configurations, Test Java, Remove Old Versions of Java, Find Java version, Always redirected to the java.com download page.	Explain the following: • Concept of Virtual methods. • Concept of Abstract classes and methods • Features of Abstract Classes • JAVA Interfaces and their advantages • Method Overriding in JAVA • Polymorphism in JAVA • Creating, implementing and extending interfaces • Creating and using Packages in JAVA. (6Hrs.)
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 Excel on Payroll Systems. c) Create a database with MySQL on Library management system. d) Create project in Python/Java 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 Core Skills subjects which is common for a group of trades, provided separately in www.bharatskills.gov.in/ dgt.gov.in

ANNEXURE-I

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: 32/64 Bit, 7th 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 Licensed Operating System and Antivirus compatible with trade related software.	24 Nos.
2.	Laptop	4th Gen Ci5 or higher Processor, 4GB RAM, 1TB Hard Disk, Win8/latest Preloaded Licensed OS, 2GB Graphics Card, DVD Writer, Standard Ports and Connectors.	01 No.
3.	Wi–Fi Router	With Wireless Connectivity	01 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.	DLP Projector with Screen/Multimedia Projector with screen/Smart Interactive Board/Smart TV		01 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)	05 Nos.
22.	Punching Tool	for punching RJ 45 socket with cat 5 cable	05 Nos.
B. Software			
23.	MS Office	2010 (Academic) or the 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 / Java JDK	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
C. List Of Other Items/Furniture			
32.	Chair and table for the instructor	As required	01 each (for classroom & laboratory)
33.	Dual Desk or Chair and Tables for Trainees	As required	12 / 24 Nos.
34.	Computer table/Work benches	As required	For 24 Computers
35.	Operators chair	As required	24 Nos.
36.	Air conditioner	As required	As required
37.	White Board	As required	01 No.
38.	Almirah	As required	01 No.
39.	Fire Extinguisher	Arrange all proper NOCs and equipments from Municipal/Competent authorities.	

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


कौशलं बलम्