Industrial Training Institute

COMPUTER OPERATOR AND PROGRAMMING ASSISTANT

सत्यमेव जयते

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

COMPETENCY BASED CURRICULUM

COMPUTER OPERATOR AND PROGRAMMING ASSISTANT

(Revised in 2017)

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL - 4

SECTOR – IT & ITES

कौशल बलम्

Industrial Training Institute

Skill India
कौशल भारत - कुशल भारत

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CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL - 4

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training
CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
EN-81, Sector-V, Salt Lake City,
Kolkata – 700 091

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CONTENTS

During the one year duration of Computer Operator and Programming Assistant trade a candidate is trained on professional skill, professional knowledge and Employability skill. In addition to this a candidate is entrusted to undertake project work and extracurricular activities to build up confidence. The broad components covered related to the trade are categorized in two semester of six months duration each. The semester wise course coverage is categorized as below:-

1st **semester** – In this semester the trainee learns about safety and environment, use of fire extinguishers. They 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 use internet to search information using browser along with official/social communication process. Trainees will create basic static webpage using HTML. At the end of this semester trainees can go on industrial visit or projects specified in the syllabus.

2nd **semester** – In this semester the trainee learns scripting language i.e. JavaScript and will develop dynamic webpage and hosting technique in a registered domain. They will use VBA to create & edit various types of macros in MS Excel and to develop user form using VBA. They can maintain accounts of an organization using accounting software Tally. 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 cyber crimes now days and will be able to secure information from Internet by using cyber security concept. At the end of this semester trainees can go on industrial visit or projects specified in the syllabus.

2.1 GENERAL

Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers range of vocational training courses catering to the need of different sectors of economy/ Labour market. The vocational training programmes are delivered under aegis of National Council of Vocational Training (NCVT). Craftsman Training Scheme (CTS) and Apprenticeship Training Scheme (ATS) are two pioneer programmes of NCVT for propagating 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 (02 semester) duration. It mainly consists of trade (skills and knowledge). After passing out the training programme, the trainee is being awarded National Trade Certificate (NTC) by NCVT having worldwide recognition.

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 CAREER PROGRESSION PATHWAYS

- 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.

2.3 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of one year (02 semesters): -

Sl. No.	Course Element	Notional Training Hours
1	Professional Skill (Trade Practical)	1260
2	Professional Knowledge (Trade Theory)	252
3	Employability Skills	110
4	Library & Extracurricular activities	58
5	Project work	160
6	Revision & Examination	240
	Total	**2080**

2.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his skill, knowledge and attitude during the period of course and at the end of the training programme as notified by Govt of India from time to time. The Employability skills will be tested in first two semesters only.

a) The **Internal assessment** during the period of training will be done by **Formative assessment method** by testing for assessment criteria listed against learning outcomes. The training institute have to maintain individual *trainee portfolio* as detailed in assessment guideline. The marks of internal assessment will be as per the template (Annexure – I).

b) The final assessment will be in the form of summative assessment method. The All India Trade Test for awarding NTC will be conducted by NCVT at the end of each semester as per guideline of Govt of India. The pattern and marking structure is being notified by govt of India 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

The minimum pass percent for Practical is 60% & minimum pass percent for Theory subjects 40%. For the purposes of determining the overall result, 25 percent weight is applied to the result of each semester examination.

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 team work, 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 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

Evidences of internal assessments are to be preserved until forthcoming semester examination for audit and verification by examination body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Weightage 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 acceptable standard of craftsmanship.	• Demonstration of good skill in the use of hand tools, machine tools and workshop equipment • Below 70% tolerance dimension achieved while undertaking different work with those demanded by the component/job. • A fairly good level of neatness and consistency in the finish • Occasional support in completing the project/job.
(b) Weightage in the range of above 75% - 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 in the use of hand tools, machine tools and workshop equipment • 70-80% tolerance dimension achieved while undertaking different work with those demanded by the component/job. • A good level of neatness and consistency in the finish • Little support in completing the project/job
(c) Weightage 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 in the use of hand tools, machine tools and workshop equipment • Above 80% tolerance dimension achieved while undertaking different work with those demanded by the component/job. • A high level of neatness and consistency in the finish. • Minimal or no support in completing the project.

Computer Operator:

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:

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 the area of 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.

Reference NCO-2015:-

i)   4131.0600 (Computer Operator)
ii)   3514.0300 (Programming Assistant)

4. NSQF LEVEL COMPLIANCE

NSQF level for **COMPUTER OPERATOR AND PROGRAMMING ASSISTANT** trade under CTS: **Level 4**

As per notification issued by Govt. of India dated- 27.12.2013 on National Skill Qualification Framework total 10 (Ten) Levels are defined.

Each level of the NSQF is associated with a set of descriptors made up of five outcome statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are:

    a.   Process
    b.   professional knowledge,
    c.   professional skill,
    d.   core skill and
    e.   Responsibility.
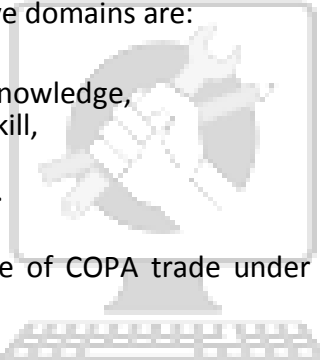
The Broad Learning outcome of COPA trade under CTS mostly matches with the Level descriptor at Level- 4.
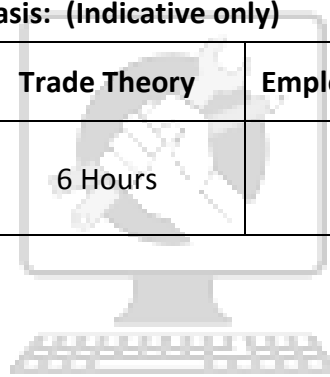
The NSQF level-4 descriptor is given below:

LEVEL	Process required	Professional knowledge	Professional skill	Core skill	Responsibility
Level 4	Work in familiar, predictable, routine, situation of clear choice	Factual knowledge of field of knowledge or study	Recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts	Language to communicate written or oral, with required clarity, skill to basic Arithmetic and algebraic principles, basic understanding of social political and natural environment	Responsibility for own work and learning.

Name of the Trade	COMPUTER OPERATOR AND PROGRAMMING ASSISTANT
NCO - 2015	**4131.0600** **3514.0300**
NSQF Level	Level 4
Duration of Craftsmen Training	1 Years (2 Semesters)
Entry Qualification	Passed 10th class examination
Unit Strength (No. Of Student)	20
Space Norms	70 Sq. metres
Power Norms	3.45 KW
Instructors Qualification for	
1. Computer Operator And Programming Assistant Trade	**_Technical_ –** (i) B.E./B. Tech in Computer Science / IT from Recognized University with one year expreience in the relevant field. *OR* (ii) Post Graduate in Computer Science /Computer Application / IT or NIELIT B Level with one year expreience in the relevant field. *OR* (iii) 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* (iv) Three year Diploma from recognized Board/ Institute in Computer Science / IT with two year expreience in the relevant field. *OR* (v) National Apprenticeship Certificate or National Trade Certificate in the trade of Computer Operator and Programming Assistant and National Craft Instructor Training Certificate in the trade if available with three year expreience in the relevant field. _**Desirable Qualification**_ Preference will be given to a candidate with CITS(Craft Instructor Training Scheme) in COPA Trade. _**NOTE**_**:** **Out of two Instructors required for the unit of 2(1+1), one must have Degree/Diploma and other must have NTC/NAC qualifications.**

2. Employability Skill	MBA OR BBA with two years experience OR Graduate in Sociology/ Social Welfare/ Economics with Two years experience OR Graduate/ Diploma with Two years experience and trained in Employability Skills from DGT institutes.
	AND
	Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above.
	OR
	Existing Social Studies Instructors duly trained in Employability Skills from DGT institutes.
List of Tools & Equipment	As per Annexure-I

Distribution of training on Hourly basis: (Indicative only)

Total Hrs /week	Trade Practical	Trade Theory	Employability Skills	Extra-Curricular Activity
40 Hours	30 Hours	6 Hours	2 Hours	2 Hours

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

6.1 GENERIC LEARNING OUTCOME

1. Apply safe working practices.
2. Comply environment regulation and housekeeping.
3. Work in a team, understand and practice soft skills, technical English to communicate with required clarity.
4. Understand and explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.
5. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.
6. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.

6.2 SPECIFIC LEARNING OUTCOME

7. Install and setup operating system and related software in a computer.
8. Create, format and edit document using word processing application software.
9. Create, format, edit and develop a workbook by using spreadsheet application software.
10. Create and customize slides for presentation.
11. Create and manage database file using MS Access.
12. Install, setup/configure, troubleshoot and secure computer network including Internet.
13. Develop static web pages using HTML.
14. Develop web pages using Java Script.
15. Develop simple spread sheets by embedding VBA.
16. Maintain accounts using accounting software.
17. Browse, select and transact using E commerce websites.
18. Secure information from Internet by using cyber security concept.

7. LEARNING OUTCOME WITH ASSESSMENT CRITERIA

GENERIC LEARNING/ ASSESSABLE OUTCOME	
LEARNING / ASSESSABLE OUTCOME	**ASSESSMENT CRITERIA**
1. Apply safe working practices.	1.1 Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements and according to site policy.
	1.2 Recognize and report all unsafe situations according to site policy.
	1.3 Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	1.4 Identify, handle and store / dispose off dangerous goods and substances according to site policy and procedures following safety regulations and requirements.
	1.5 Identify and observe site policies and procedures in regard to illness or accident.
	1.6 Identify safety alarms accurately.
	1.7 Report supervisor/ Competent of authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	1.8 Identify and observe site evacuation procedures according to site policy.
	1.9 Identify Personal Productive Equipment (PPE) and use the same as per related working environment.
	1.10 Identify basic first aid and use them under different circumstances.
	1.11 Identify different fire extinguisher and use the same as per requirement.
2. Comply environment regulation and housekeeping.	2.1 Identify environmental pollution & contribute to the avoidance of instances of environmental pollution.
	2.2 Deploy environmental protection legislation & regulations
	2.3 Take opportunities to use energy and materials in an environmentally friendly manner
	2.4 Avoid waste and dispose waste as per procedure
	2.5 Recognize different components of 5S and apply the same in the working environment.
3. Work in a team, understand and practice	3.1 Obtain sources of information and recognize information.
	3.2 Use and draw up technical drawings and documents.

soft skills, technical English to communicate with required clarity.	3.3 Use documents and technical regulations and occupationally related provisions.
	3.4 Conduct appropriate and target oriented discussions with higher authority and within the team.
	3.5 Present facts and circumstances, possible solutions &use English special terminology.
	3.6 Resolve disputes within the team
	3.7 Conduct written communication.
4. Understand and explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.	4.1 Semester examination to test the concept in productivity, quality tools and labour welfare legislation.
	4.2 Their applications will also be assessed during execution of assessable outcome.
5. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	5.1 Semester examination to test knowledge on energy conservation, global warming and pollution.
	5.2 Their applications will also be assessed during execution of assessable outcome.
6. Explain entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	6.1 Semester examination to test knowledge on entrepreneurship.
	6.2 It's applications will also be assessed during execution of assessable outcome.

SPECIFIC LEARNING/ ASSESSABLE OUTCOME	
SEMESTER-I	
LEARNING / ASSESSABLE OUTCOME	**ASSESSMENT CRITERIA**
7. Install and setup operating system and related software in a computer.	7.1 Assemble computer and configuring the CMOS setup.
	7.2 Install and configure Windows OS and application software.
	7.3 Install the printer and other peripheral devices.
	7.4 Burn CD/DVD.
	7.5 Troubleshoot the PC.
	7.6 Execute DOS and LINUX commands.
	7.7 Customize Windows and LINUX OS.
8. Create, format and edit document using word processing application software.	8.1 Identify Word tools in the Ribbon.
	8.2 Create a resume using various tools.
	8.3 Design and print Magazine covers using various tools.
	8.4 Demonstrate the use of shortcut keys , autocorrect and macros.
	8.5 Perform Mail merge in MS Word.
	8.6 Typing practice using open source typing tutor tools.
9. Create, format, edit and develop a workbook by using spreadsheet application software.	9.1 Create tables, chart and print using various functions and formulas, apply Conditional formatting.
	9.2 Create a table and Perform Sorting; filtering, Subtotal, validation and goal seek on a table.
	9.3 Prepare a pivot table and chart on any existing table.
10. Create and customize slides for presentation.	10.1 Edit images with Open Office Applications.
	10.2 Create Slides and run slideshows.
	10.3 Format objects, add Audio and Video.
	10.4 Use Open Office for creating presentations.
11. Create and manage database file by using MS Access.	11.1 Create simple application on Relational Database in MS Access using data validation, filters, sorting, forms, query, report and macro.
	11.2 Import , Export, Link, Backup and Retrieve database in MS Access.
12. Install, setup/configure, troubleshoot and secure computer network including Internet.	12.1 Identify different cables and connectors used in networking.
	12.2 Assign Computer Name and workgroup to a computer
	12.3 Prepare UTP cross cable & connect computers
	12.4 Share a printer with Network
	12.5 Share Internet using Windows Tools
	12.6 Check Network connectivity

	12.7 Configure HUB & Switch
	12.8 Configure DHCP and firewall
	12.9 Setup Video conferencing
	12.10 Secure Network with various tools
	12.11 Practice Web Browsing and create E Mail ID and sending receiving mails
	12.12 Perform text chat and video chat using social network sites
	12.13 Configure Outlook Express
	12.14 Use Skype and Google+ or any other video conferencing site.
13. Develop static web pages using HTML.	13.1 Create simple static Web Pages using HTML tags.
	13.2 Create simple static WebPages using internal styles (CSS) and external style.
	13.3 Design static web pages using Kompozer.
SEMESTER-II	
14. Develop web pages using Java Script.	14.1 Design a dynamic Web Page in JavaScript using various operators.
	14.2 Design a dynamic Web Page in JavaScript using various control statements and looping structures.
	14.3 Design a dynamic Web Page in JavaScript using strings and functions.
	14.4 Design a dynamic Web Page in JavaScript using Arrays and objects.
	14.5 Design a dynamic Web Page in JavaScript using Web Forms and images.
15. Develop simple spread sheets by embedding VBA.	15.1 Create various types of macros in MS Excel.
	15.2 Develop and execute a program in VBA using various operators and data types.
	15.3 Develop and execute a program in VBA using control statements and looping structures.
	15.4 Develop and execute a program in VBA using strings and functions.
	15.5 Develop and execute a program in VBA using Arrays.
	15.6 Design a VBA User Form and develop program using various control buttons and boxes.
16. Maintain accounts using accounting software.	16.1 Create a company in Tally.
	16.2 Create opening ledgers using an existing Balance Sheet.
	16.3 Post voucher in tally in different modes.
	16.4 Performing Cost Centre & Cost category.
	16.5 Manufacture and transfer materials in Tally.
	16.6 Show P/L A/c, Balance Sheet and other reports.

	16.7 Apply Budget.
	16.8 Post VAT & Service Tax related entry in Tally
17. Browse, select and transact using E-commerce websites.	17.1 Place order for products from E commerce websites for purchase.
	17.2 Upload a product in E Commerce site for sale.
	17.3 Identify security issues in E- commerce and payment operations.
18. Secure information from Internet by using cyber security concept.	18.1 Provide firewall security for Internet connection and Network System.
	18.2 Make backup copies of important file, data and information.
	18.3 Secure your Wi-Fi networks using wireless security features.

SYLLABUS FOR COMPUTER OPERATOR AND PROGRAMMING ASSISTANT			
FIRST SEMESTER – 06 Months			

Learning Objectives:
1. Install and setup operating system and related software in a computer.
2. Create and edit document using word processing application software.
3. Create, edit and develop a workbook by using spreadsheet application software.
4. Create and customize slides for presentation.
5. Create and manage database file by using MS Access.
6. Install, setup/configure, troubleshoot and secure computer network including Internet.
7. Develop static web pages using HTML and Kompozer.

Week No.	Learning Outcome	Professional Skills (Trade Practical) With indicative hours	Professional Knowledge (Trade Theory)
1	• Apply safe working practices • Install and setup operating system and related software in a computer.	**Safe working practices** 1. Visit COPA Lab. of the institutes and locate the electrical connections with computer system setup. (6 hrs) 2. Identifying safety symbols and hazard identification. (4 Hrs) 3. Practice safe methods of fire fighting in case of electrical fire. (4 hrs) 4. Use of fire extinguishers. (4 Hrs) **Computer components** 5. Identify computer peripherals and internal components of a disassembled desktop computer. (6 Hrs) 6. Assemble components of desktop computer. (6 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. Concepts of Hardware and Software. • Function of motherboard components and various processors. • Various Input/ Output devices in use and their features.
2	Install and setup operating system and related software in a computer.	**Using Windows Operating System** 7. Practice on Windows interface and navigating windows. (9 Hrs) 8. Practice on managing files and folders using removable drives. (6 Hrs) 9. Customize the desktop settings and manage user accounts. (6 Hrs)	**Introduction Windows Operating System** • Introduction to operating System • Main features of Windows OS • Concept of various shortcut commands.

		10. View system properties and control panel details. (6 Hrs) 11. Work with keyboard shortcut commands. (6 Hrs) 12. Print and scan document using different commands. (3 Hrs)	
3	Install and setup operating system and related software in a computer.	**Computer basics and Software Installation** 13. View the BIOS settings and their modifications. (3 Hrs) 14. Install Windows operating system. (5 Hrs) 15. Format hard disk and create partition. (3 Hrs) 16. Identify and rectify common hardware and software issues during OS installation. (4 Hrs) 17. Install necessary application software for Windows i.e. Office Package, PDF Reader, Media Player etc. (5 Hrs) 18. Configure Bluetooth and wi-fi settings. (3 Hrs) 19. Install Drivers for printer, scanner, webcam and DVD etc. (4 Hrs) 20. Burn data, video and audio files on CD/DVD using application software. (3 Hrs)	**Computer basics and Software Installation** • Introduction to the booting process. • Introduction to various types of memories and their features. • Basic Hardware and software issues and their solutions. • Usage of Application software and Antivirus.
4 - 5	Install and setup operating system and related software in a computer.	**DOS Command Line Interface & Linux Operating Systems** 21. Use basic DOS commands for directory listing. (10 Hrs) 22. Manage files and folders using DOS commands. (6 Hrs) 23. Install Linux operating system. (6 Hrs) 24. Install necessary application software for Linux i.e. Office Package, PDF Reader, Media Player etc. (6 Hrs) 25. Use Basic Linux commands for directory listing, file and folder management, password etc. (10 Hrs)	**Introduction to DOS Command Line Interface & Linux Operating Systems** • 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.

		26. Use the Linux graphical user interface for file and folder management, exploring the system etc. (10 Hrs) 27. Customize desktop settings and manage user accounts in Linux. (6 Hrs) 28. View system properties and manage system setting in Linux . (6 Hrs)	
6 - 8	Create, format and edit document using word processing application software.	**Using Word Processing Software** 29. Open MS Word and familiarise with basic word components. (3 Hrs) 30. Practice creating, saving and renaming of word documents. (3 Hrs) 31. Edit document using basic formatting tools. (8 Hrs) 32. Practice Inserting and formatting tables and other objects. (12 Hrs) 33. Work with Page layout settings and printing documents. (6 Hrs) 34. Use templates, autocorrect tools, and record and execute a macro. (6 Hrs) 35. Use Mail merge tool. Use conditional Mail Merge, External Data Source. Practice Letters, Label & Envelop printing using Mail Merge (10 Hrs). 36. Use Table of Context, Indexing, Hyperlink, Bookmark, Comment, equation , symbols, citation, cross-reference, footnote, translate, synonyms, thesaurus, spell check & grammer, compare etc. (6 Hrs) 37. Practice Typing using open source typing tutor. (24 Hrs) 38. Practice of using shortcut keys and use Open Office as word processor. (12 Hrs)	**Word Processing Software** • 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.
9 - 11	Create, format, edit and	**Using Spread Sheet Application** 39. Open MS Excel and familiarise	**Spread Sheet Application** • Introduction to Excel

	develop a workbook by using spreadsheet application software.	with basic application components. (4 Hrs) 40. Practice creating, saving and formatting excel spread sheets. (9 Hrs) 41. Use absolute and relative referencing, linking sheets, conditional formatting etc. (9 Hrs) 42. Practice Excel functions of all major categories i.e. Financial, Logical, Text, date & time, Lookup, Math, Statistical etc. (12 Hrs) 43. Use various data types in Excel, sorting, filtering and validating data. (8 Hrs) 44. Create and format various static and dynamic charts. (10 Hrs) 45. Practice Importing & exporting excel data. (4 Hrs) 46. Perform data analysis using "what if" tools and Pivot Table and record and execute a macro. (10 Hrs) 47. Modify Excel page setup and printing and use open office as Spreadsheet application. (4 Hrs) 48. Execute simple projects using Excel & Word. (20 Hrs)	features and Data Types. • Cell referencing and linking Sheets. • Introduction to various functions in all categories of Excel. • Concepts of sorting, filtering and validating data. • Analyzing data using charts, data tables, pivot tables, goal seek and scenarios.
12-13	Create and customize slides for presentation.	**Image editing and creating Presentations** 49. Use Windows Paint or image editing software like Open Office Draw, GIMP, IrfanView or a similar tool. (6 Hrs) 50. Perform Image editing using open source applications. (12 Hrs) 51. Open power point presentation and familiarise with basic application components. (6 Hrs) 52. Create Slide shows, Insert picture and theme. (6 Hrs) 53. Add new slide, format text, link with word and excel documents. (5 Hrs)	**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.

		54. Practice animating slide transitions and objects. (4 Hrs) 55. Create slide shows by inserting audio & video and synchronise with presentation. (6 Hrs) 56. Modify slide page setup and print the slides. (3 Hrs) 57. Create a simple presentation project using open office. (12 Hrs)	
14 - 15	Create and manage database file by using MS Access.	**Database Management with MS Access** 58. Create database and design a simple tables in Access. (6 Hrs) 59. Practice enforcing integrity constraints and modify properties of tables and fields. (6 Hrs) 60. Create relationships and join tables. (6 Hrs) 61. Create and format Forms. (6 Hrs) 62. Create simple queries with various criteria and calculations. (12 Hrs) 63. Create Simple update, append, make table, delete and crosstab queries. (9 Hrs) 64. Modify form design with controls, macros and events. (6 Hrs) 65. Import and export data to and from Access and create and format various types of reports. (6 Hrs) 66. Compress and Encrypt databases. (3 Hrs)	**Database Management Systems** • Concepts of Data and Databases. • Overview of popular databases, RDBMS, OODB and NOSQL. • Rules for designing good tables. Integrity rules and constraints in a table. • Relationships in tables. • Introduction to various types of Queries and their uses. • Designing Access Reports and Forms. • Introduction to macros, designer objects controls, their properties and behaviour.
16 - 17	Install, setup/ configure, troubleshoot and secure computer network including Internet.	**Configuring and using Network** 67. View Network connections. (3 Hrs) 68. Connect a computer to a network and share Devices i.e. Printers, files, folders and drives. (6 Hrs) 69. 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. (6 Hrs) 70. Practice IP Addressing and Subnet	**Networking Concepts** • Introduction to Computer Networks, Necessity and Advantages. • Client Server and peer to Peer networking concepts. • Concept of Proxy Server and proxy firewall server. • Concept of DHCP Server. • Network topologies. Introduction to LAN, WAN and MAN.

		masking for IPV4/ IPV6 and pinging to test networks. (6 Hrs) 71. Configure Hub and Switch. (6 Hrs) 72. Set up and configure wired and wireless LAN in a Computer Lab within at least three computers. Use patch panel & I/O Box for wired LAN and installing & configuring Internet connection in a single PC and in a LAN. (12 Hrs) 73. Set up a proxy server/ DHCP Server with firewall. (9 Hrs) 74. Set up video conferencing using open source software. (6 Hrs) 75. Use various tools (by open source /free) for network troubleshooting, maintenance and security for both Wired and Wireless(6 Hrs)	• Network components, viz. Modem, Hub, Switch, Router, Bridge, Gateway etc. • Network Cables, Wireless networks and Blue Tooth technology. • Concept of ISO - OSI 7 Layer Model. • Overview of various Network protocols Viz. TCP/IP, FTP, Telnet etc. • Concept of Logical and Physical Addresses, Subnetting and Classes of Networks.
18	Install, setup/ configure, troubleshoot and secure computer network including Internet.	**Using Internet** 76. Browse the Internet for information (use at least 3 popular browsers). (3 Hrs) 77. Create and use e-mail for communication with attachment, priority setting, address book. (3 Hrs) 78. Communicate with text, video chatting and social networking sites. (6 Hrs) 79. Use online dictionary, translation software, storage space, share files with e-mail links, download manager, download & upload YouTube files, google map & earth etc. Update windows & other software. (6 Hrs) 80. Configure Outlook, mail service in mobile phones. Use tools like Skype, Google+ etc. (6 Hrs) 81. Browser setting for Bookmark, cookies, favourites and pop ups, default website, trusted site, restricted site, content, history	**Internet Concepts** • 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.

19 - 21	Develop static web pages using HTML.	**Designing Static Web Pages** 82. Practice with basic HTML elements (e.g. head, title, body), tag and attributes. (3 Hrs) 83. Design simple web page with text, paragraph and line break using HTML tags. (5 Hrs) 84. Format text, change background colour and insert pictures in web page. (6 Hrs) 85. Design simple web page with tables and lists. (6 Hrs) 86. Use marquees, hyperlinks and mailto link in designing web pages. (6 Hrs) 87. Create frames, add style and design layout. (10 Hrs) 88. Insert text box, check box and combo box in web page. (6 Hrs) 89. Design web page using password field, submit button, reset button and radio button etc. (6 Hrs) 90. Design a web page adding flash file, audio and video files. (10 Hrs) 91. Design web page with forms and form controls using HTML tags. (8 Hrs) 92. Create web page using Cascading Style Sheet (CSS). (12 Hrs) 93. Use WYSIWYG (Kompozer) web design tools to design and edit web pages with various styles. (12 Hrs)	**Web Design Concepts** • 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, Front Page etc. • Concept of good web page designing techniques.
22-23	Industrial Visit/Project work (**1.** Create a simple web site of at least 5 web pages which will include Images, tables, charts, lists and hyperlink on any topic like Student Information System, Book Store, and Organisations etc. **OR** **2.** Setup and configure a LAN using at least 3 computers connected with wire and 3 computers connected with wireless and secure it.)			
24-25	Revision			
26	Examination			

The row above the table: and advanced setup. (6 Hrs)

SYLLABUS FOR COMPUTER OPERATOR AND PROGRAMMING ASSISTANT			
SECOND SEMESTER – 06 Months			
Learning Objectives			

Learning Objectives

1. Understand and develop basic programs using JavaScript.
2. Develop dynamic web pages using JavaScript.
3. Create and edit macros using VBA in MS Excel.
4. Develop basic programs using VBA.
5. Create the User Forms and develop programs for the User Forms using VBA.
6. Maintain accounts by creating a company using accounting software.
7. Browse, select and transact using E commerce websites.
8. Secure information from Internet by using cyber security concept.

Week No.	Learning Outcome	Professional Skills (Trade Practical) With indicative hours	Professional Knowledge (Trade Theory)
27 - 33	Develop web pages using JavaScript.	**JavaScript & creating Web page** 94. Practice with basic elements of JavaScript. (12 Hrs) 95. Embed JavaScript in HTML to display information in web pages, documentation and formatting of HTML source code. (18 Hrs) 96. Use JavaScript Variables, Data types, Constants and Operators. (18 Hrs) 97. Use Control statements and Loops in JavaScript. (18 Hrs) 98. Practice with switch case, loop controls and Errors in JavaScript. (18 Hrs) 99. Practice with Arrays in JavaScript page. (12 Hrs) 100. Practice with functions in JavaScript web page. (18 Hrs) 101. Practice with String, Math and Date functions in JavaScript. (24 Hrs) 102. Use online tool or open source software to develop and edit web pages containing Titles, different font sizes and colours, frames, lists, tables, images, image map, controls, CSS, forms, hyperlinks etc., use web template to create a web page of various styles. (36 Hrs)	**Introduction to JavaScript** • 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.

		103. Develop a simple web project using HTML, JavaScript and host it in IIS and a registered domain. (36 Hrs)	• Concepts of Pop Up boxes in JavaScript. • Introduction to the Document Object Model. • Concepts of using Animation and multimedia files in Java Script.
34 - 41	Develop simple spread sheets by embedding VBA.	**Programming with VBA** 104. Practice with basic functions of VBA Editor. (3 Hrs) 105. Use form controls like buttons, Check boxes, Labels, Combo Box, Group Box, List Box, Option Button, Scroll Bar and Spin button. (12 Hrs) 106. Modify object properties in VBA program. (6 Hrs) 107. Write simple programs involving VBA Data types, Variables, Operators and Constants. (18 Hrs) 108. Create Message boxes and Input boxes in VBA. (6 Hrs) 109. Work with conditional statements like if, Else-if, and Select. (12 Hrs) 110. Practice with Loop, Loop Control and Case statements in VBA. (15 Hrs) 111. Create and Manipulate Arrays in VBA. (12 Hrs) 112. Practice with string variables in VBA programming. (12 Hrs) 113. Write programs involving Mathematical, Conversion, Date and String Functions in VBA. (18 Hrs) 114. Create Functions, Procedures, Passing Parameters and Using Returned Data. (12 Hrs) 115. Practice with built in functions in VBA programs. (12 Hrs) 116. Create and edit macros. (12 Hrs) 117. Write code to work with Excel in	**Introduction to VBA, Features and Applications.** • Introduction to VBA features and applications. • Properties, events and methods associated with the Button, Check Box, Label, Combo Box, Group Box, Option Button, List Box, Scroll Bar and Spin button controls. • VBA Data types, Variables and Constants. • Operators in VBA and operator precedence. • Mathematical Expressions in VBA. • Introduction to Arrays in VBA. • Introduction to Strings in VBA. • Conditional processing in VBA, using the IF, Else-if, Select Case Statements. • Introduction to Loops in VBA. • VBA message boxes and input boxes. • Introduction to Creating functions and Procedures in VBA. • Using the built in functions. • Introduction to Object Oriented Programming Concepts. Concepts of Classes, Objects,

		VBA forms. (12 Hrs) 118. Practice with methods and events in VBA Programming. (24 Hrs) 119. Debug, Step through code, Breakpoints, find and fix errors while debugging. (18 Hrs) 120. Develop a simple project involving MS excel and VBA. (36 Hrs)	Properties and Methods. • The user forms and control in Excel VBA. • Introduction to Debugging Techniques.
42 - 45	Maintain accounts using accounting software.	**Using Accounting Software** 121. Practice Basic accounting with tally interface. (12 Hrs) 122. Create Company, Account and Voucher entry in Tally. (12 Hrs) 123. Generate reports for Invoice, Bill, Profit & Loss account etc. (10 Hrs) 124. Perform Cost Centre & Cost Category management. (12 Hrs) 125. Create and manage budgeting systems. (12 Hrs) 126. Create Scenario and Variance Analysis. (8 Hrs) 127. Use Tally for Costing, Ratio Analysis, Cash flow and Funds flow statements. (12 Hrs) 128. Analyze and Manage Inventory control. (10 Hrs) 129. Perform Point of Sales and Taxation (VAT, Excise, Service Tax). (8 Hrs) 130. Perform System Administration and use other Utilities. (8 Hrs) 131. Create users, take Backup & Restore of Company. (8 Hrs) 132. Use Multilingual Functionality in Tally. (8 Hrs)	**Using Accounting Software** • Basics of Accounting, Golden Rules of Accounting, Voucher Entry, Ledger Posting, Final Accounts Preparation. • Cash Book. Ratio Analysis, Depreciation, Stock Management. • Analysis of VAT, Cash Flow, Fund Flow Accounting. • Introduction to Tally, features and Advantages. • Implementing accounts in Tally. • Double entry system of book keeping. • Budgeting Systems, Scenario management and Variance Analysis. • Costing Systems, Concepts of Ratios, Analysis of financial statements. • Inventory Basics, POS Invoicing, TDS, TCS, FBT, VAT & Service Tax. • Tally Interface in Different Languages.
46	Browse, select and transact using E-commerce	**E Commerce** 133. Browse E-commerce websites viz. ebay, Amazon, flipkart, OLX, quikr etc. and prepare comparative	**E Commerce Concepts** • Introduction to E-Commerce and

	websites	statement of the main features of these sites. (8 Hrs) 134. Upload products for selling in E-Commerce Sites and make online purchase from E Commerce sites.(14 Hrs) 135. Manage security issues in E-Commerce and payment operations. (8 Hrs)	advantages. • Building business on the net. • Payment and Order Processing, Authorization, Chargeback and other payment methods. • Security issues and payment gateways.
47	Secure information from Internet by using cyber security concept.	**Cyber Security:** 136. Protect information, computers and networks from viruses, spyware and other malicious code. (3 Hrs) 137. Provide firewall security for Internet connection and Network System. (6 Hrs) 138. Protect the computer against various internet threats. (3 Hrs) 139. Make backup copies of important file, data and information. (3 Hrs) 140. Secure your Wi-Fi networks using password, WEP, WPA-PSK, WPA2-PSK, SSID, MAC address filtering. Create individual user accounts for each member. (9 Hrs) 141. Limit member access to data and information, and restrict authority to install unnecessary downloads. (6 Hrs)	**Cyber Security:** • 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 cyber crimes.
48-49	Industrial Visit/Project work (**1.** Create and host a web site of atleast 6 web pages using JavaScript containing interactive objects, functions etc. **OR** **2.** Create a project with Excel & VBA on Payroll Systems. **OR** **3.** Create a company in Tally and post vouchers in it for a financial period. Vouchers should contain purchase, sales with VAT, contra, payment , receipts, cost centre cost category etc.)		
50-51	Revision		
52	Examination		

Employability Skill - 1st Semester		
1. English Literacy		Duration : 20 Hrs. Marks : 09
Pronunciation	Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)	
Functional Grammar	Transformation of sentences, Voice change, Change of tense, Spellings.	
Reading	Reading and understanding simple sentences about self, work and environment	
Writing	Construction of simple sentences Writing simple English	
Speaking / Spoken English	Speaking with preparation on self, on family, on friends/ classmates, on know, picture reading gain confidence through role-playing and discussions on current happening job description, asking about someone's job habitual actions. Cardinal (fundamental) numbers ordinal numbers. Taking messages, passing messages on and filling in message forms Greeting and introductions office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.	
2. I.T. Literacy		Duration : 20 Hrs. Marks : 09
Basics of Computer	Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer.	
Computer Operating System	Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc, Use of Common applications.	
Word processing and Worksheet	Basic operating of Word Processing, Creating, opening and closing Documents, use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & creation of Tables. Printing document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets.	
Computer Networking and Internet	Basic of computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web (WWW), Web Browser, Web Site, Web page and Search Engines. Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email. Social media sites and its implication. Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT - ACT, types of cyber crimes.	
3. Communication Skills		Duration : 15 Hrs. Marks : 07
Introduction to Communication Skills	Communication and its importance Principles of Effective communication	

	Types of communication - verbal, non verbal, written, email, talking on phone.
	Non verbal communication -characteristics, components-Para-language Body language
	Barriers to communication and dealing with barriers.
	Handling nervousness/ discomfort.
Listening Skills	Listening-hearing and listening, effective listening, barriers to effective listening guidelines for effective listening.
	Triple- A Listening - Attitude, Attention & Adjustment.
	Active Listening Skills.
Motivational Training	Characteristics Essential to Achieving Success.
	The Power of Positive Attitude.
	Self awareness
	Importance of Commitment
	Ethics and Values
	Ways to Motivate Oneself
	Personal Goal setting and Employability Planning.
Facing Interviews	Manners, Etiquettes, Dress code for an interview
	Do's & Don'ts for an interview.
Behavioral Skills	Problem Solving
	Confidence Building
	Attitude

Employability Skill - 2nd Semester	

Employability Skill - 2nd Semester

4. Entrepreneurship Skills	Duration : 15 Hrs. Marks : 06
Concept of Entrepreneurship	Entrepreneur - Entrepreneurship - Enterprises:-Conceptual issue Entrepreneurship vs. management, Entrepreneurial motivation. Performance & Record, Role & Function of entrepreneurs in relation to the enterprise & relation to the economy, Source of business ideas, Entrepreneurial opportunities, The process of setting up a business.
Project Preparation & Marketing analysis	Qualities of a good Entrepreneur, SWOT and Risk Analysis. Concept & application of PLC, Sales & distribution Management. Different Between Small Scale & Large Scale Business, Market Survey, Method of marketing, Publicity and advertisement, Marketing Mix.
Institutions Support	Preparation of Project. Role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non financing support agencies to familiarizes with the Policies /Programmes & procedure & the available scheme.
Investment Procurement	Project formation, Feasibility, Legal formalities i.e., Shop Act, Estimation & Costing, Investment procedure - Loan procurement - Banking Processes.
5. Productivity	Duration : 10 Hrs. Marks : 05
Benefits	Personal / Workman - Incentive, Production linked Bonus, Improvement in living standard.

Affecting Factors	Skills, Working Aids, Automation, Environment, Motivation - How improves or slows down.
Comparison with developed countries	Comparative productivity in developed countries (viz. Germany, Japan and Australia) in selected industries e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages.
Personal Finance Management	Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance.
6. Occupational Safety, Health and Environment Education	Duration : 15 Hrs. Marks : 06
Safety & Health	Introduction to Occupational Safety and Health importance of safety and health at workplace.
Occupational Hazards	Basic Hazards, Chemical Hazards, Vibroacoustic Hazards, Mechanical Hazards, Electrical Hazards, Thermal Hazards. Occupational health, Occupational hygienic, Occupational Diseases/ Disorders & its prevention.
Accident & safety	Basic principles for protective equipment. Accident Prevention techniques - control of accidents and safety measures.
First Aid	Care of injured & Sick at the workplaces, First-Aid & Transportation of sick person.
Basic Provisions	Idea of basic provision legislation of India. safety, health, welfare under legislative of India.
Ecosystem	Introduction to Environment. Relationship between Society and Environment, Ecosystem and Factors causing imbalance.
Pollution	Pollution and pollutants including liquid, gaseous, solid and hazardous waste.
Energy Conservation	Conservation of Energy, re-use and recycle.
Global warming	Global warming, climate change and Ozone layer depletion.
Ground Water	Hydrological cycle, ground and surface water, Conservation and Harvesting of water.
Environment	Right attitude towards environment, Maintenance of in -house environment.
7. Labour Welfare Legislation	Duration : 05 Hrs. Marks : 03
Welfare Acts	Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen's compensation Act.
8. Quality Tools	Duration : 10 Hrs. Marks : 05
Quality Consciousness	Meaning of quality, Quality characteristic.
Quality Circles	Definition, Advantage of small group activity, objectives of quality Circle, Roles and function of Quality Circles in Organization, Operation of Quality circle. Approaches to starting Quality Circles, Steps for continuation Quality Circles.
Quality Management System	Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.

House Keeping	Purpose of House-keeping, Practice of good Housekeeping.
Quality Tools	Basic quality tools with a few examples.

Sl. No.	Equipment/Tool	Specification	Quantity
LIST OF TOOLS & EQUIPMENT			
COMPUTER OPERATOR AND PROGRAMMING ASSISTANT			
A. Trainees Tools/ Equipment			
1.	Desktop Computer	CPU: 32/64 Bit i3/i5/i7 or latest processor, Speed: 3 GHz or Higher. Cache Memory: - Minimum 3 MB or better. RAM:-8 GB DDR-III or Higher. Hard Disk Drive: 500GB or Higher, 7200 rpm(minimum) or Higher, Wi-Fi Enabled. Network Card: Integrated Gigabit Ethernet(10/100/1000) - Wi-Fi, USB Mouse, USB Keyboard and Monitor (Min. 17 Inch), Standard Ports and connectors. DVD Writer, Speakers And Mic. Licensed Windows Operating System / OEM Pack(Preloaded), Antivirus / Total Security	10 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	01 No.
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	As required
7.	Registered Domain	at least 100 MB Web Space	As required
8.	Laser Printer	Colour A4 Size	01 No.
9.	Network Laser Printer	Monochrome A4 Size	01 No.
10.	Optical Scanner	Flatbed A4	01 No.
11.	Digital Web Cam	High Resolution(3.1 mp or higher)	04 Nos.
12.	DVD or Blu-Ray Writer	24X or higher external (usb)	02 Nos.
13.	LCD Projector	3000 lumens or higher	01 No.
14.	Projector Screen	matte(antiglare) screen	01 No.
15.	Online UPS	3KVA	02 Nos.
16.	Crimping Tool	RJ-45	05 Nos.
17.	Network Rack	4U for 24 port	01 No.
18.	Digital Multimeters	3.5 digit handheld type.	04 Nos.
19.	Screw Driver Set	Standard	04 Sets
20.	Mini Dongle for	USB	04 Nos.

	Bluetooth devices Connection		
21.	Headphone & mic. set	Wired	05 Nos
22.	Sound System	2:1	01 No.
23.	External Hard Disk	1 TB	02 Nos.
24.	Patch Panel	24 Port	02 Nos.
25.	LAN Tester	UTP cat5 cable tester (RJ 45)	05 Nos.
26.	Punching Tool	for punching RJ 45 socket with cat 5 cable	05 Nos.
B. Software			
27.	MS Office	2010 (professional) or the latest version available at the time of procurement	11 Licenses
28.	Antivirus for – clients / workstations in profile	validity of an year or more which should be renewed upon expiry	11 Licenses
29.	Open Office or equivalent	Latest version	Open source software
30.	GIMP / IrfanView Image editor or equivalent	Latest version	Open source software
31.	LINUX OS	Latest version	Open source software
32.	Web Authoring tool	WYSIWYG Web Authoring tool- Dreamweaver or Open Source tools like Kompozer, FrontPage or similar tools along with FTP tools for ex. Filezilla etc.	Proprietary /Open source software
33.	Tally	ERP 9 or Latest	11 Licenses
34.	E Commerce Simulation Software	Latest version	Open source software
35.	Web Server	HTTP Web server / XAMPP or any other similar server	Open source software
C. List Of Other Items/ Furniture			
36.	Vacuum cleaner	Hand Held	01 No.
37.	Pigeon hole cabinet	20 compartments	01 No.
38.	Chair and table for the instructor	with armrest mounted on castor wheels, adjustable height/Standard	01 each(for class room & laboratory)

39.	Dual Desk or Chair and Tables for Trainees	Standard	10 / 20 Nos
40.	Computer table	laminated top 150X650X750 mm with sliding tray for key board and one shelf of storage	10 Nos.
41.	Operators chair	without arms mounted on castor wheels, adjustable height	20 Nos.
42.	Printer table	650X500X750 mm can be varied as per local specifications	03 Nos.
43.	Air conditioner	Split type 1.5 tons	03 Nos.
44.	Storage cabinet	60X700X450mm	01Nos.
45.	White Board	minimum 4X6 feet	01 No.
46.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	01 No.
47.	Fire Extinguisher CO2	2 KG	02 Nos.
48.	Fire Buckets	Standard size	02 Nos.
D. Raw Materials			
49.	White Board Marker	Assorted colour	As required
50.	Duster Cloth	2'/2'	As required
51.	Cleaning Liquid	500 ml	As required
52.	Photo Copy Paper	A4	As required
53.	Full Scape Paper	White	02 reams
54.	Cartridges for printer	Colour/monochrome as per model of the printer	As required
55.	I/O Box with socket	RJ 45	As required
56.	RJ 45 connector	For connecting utp cat 5 cable	200 Pcs.
57.	Optical Mouse	USB/PS2	As required
58.	Key Board	USB/PS2	As required
59.	SMPS	12V DC	As required
60.	CMOS Batteries	3.0 V	As required
61.	Power Chord	3 Pin	As required
62.	Cable	Cat 5/5e	100 meter
63.	Stapler	Small	02 pcs.
64.	Stapler	Big	01 pcs.
65.	Battery for remote	AAA	As required
66.	Battery for clock	AA	As required
67.	Pen drive	8 GB	02 Nos.
68.	CDs	52x or higher	50 Nos
69.	DVDs	4.7GB or higher	50 Nos.

70.	Wall Clock	Analog	01 pcs.
71.	Battery for LAN tester	9 V	As required
72.	Power Adapter	For Hub, Switch, Router	As required
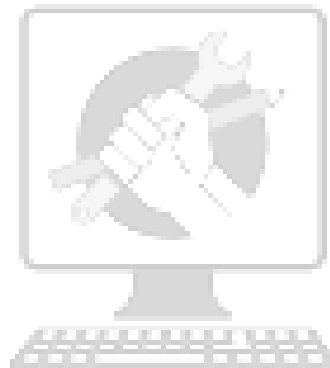
FORMAT FOR INTERNAL ASSESSMENT

Name & Address of the Assessor :		Year of Enrollment :
Name & Address of ITI (Govt./Pvt.) :		Date of Assessment :
Name & Address of the Industry :		Assessment location: Industry / ITI
Trade Name :	Semester:	Duration of the Trade/course:

Learning Outcome:

Sl. No	Candidate Name	Father's/Mother's Name	Safety consciousness	Workplace hygiene	Attendance/ Punctuality	Ability to follow Manuals/ Written instructions	Application of Knowledge	Skills to handle tools & equipment	Economical use of materials	Speed in doing work	Quality in workmanship	VIVA	Total internal assessment Marks	Result (Y/N)
	Maximum Marks (Total 100 Marks)		15	5	10	5	10	10	5	10	15	15		
1														
2														