



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**  
(Established by Govt. of Kerala)  
Thiruvananthapuram, Kerala.

**List of approved Short-term Courses**  
(as on January 2020)

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Sl	Code	Course	Duration	Eligibility	Fees
1	ST 1101	Short-term Course on MS-Office & Internet	60 Hrs.	SSLC or equivalent	Rs. 1,500/-+GST applicable
2	ST 1102	Certificate Course on Computerised Office Management	110 Hrs.	SSLC or equivalent	Rs. 1,000/-+GST applicable
3	ST 1501	Certificate Course in Desktop Publishing	110 Hrs.	SSLC Passed + Computer Awareness	Rs. 1,500/-+GST applicable
4	ST 1502	Short-term Course on Embedded System & Image Processing	80 Hrs.	Plus two / Diploma / ITI / Above	Rs. 4,500/-+GST applicable
5	ST 1801	Short-term Course on Computerised Financial Accounting using Tally	75 Hrs.	Plus two or equivalent	Rs. 3,000/-+GST applicable
6	ST 1802	Short-term Course on Computer Hardware and Network Maintenance	90 Hrs.	SSLC or equivalent	Rs. 4,000/-+GST applicable
7	ST 1803	Short-term Course on Programming in C	75 Hrs.	SSLC or equivalent	Rs. 3,000/-+GST applicable
8	ST 1804	Short-term Course on Programming in C++	75 Hrs.	SSLC or equivalent	Rs. 3,500/-+GST applicable
9	ST 1805	Short-term Course on Web Designing	90 Hrs.	SSLC or equivalent	Rs. 5,000/-+GST applicable.
10	ST 1901	Short-term Course on Electronics	60 Hrs.	8 <sup>th</sup> Standard or above	Rs. 3,500/-+GST applicable
11	ST 1902	Short-term Course on IT Master	60 Hrs.	8 <sup>th</sup> Standard or above	Rs. 3,500/-+GST applicable
12	ST 2001	Short-term Course on 3D Printing	100 Hrs.	Plus two or above	Rs. 3,000/-+GST applicable



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## **Short-term Course on MS-Office & Internet**

*[Scheme 2011]*

Course Code : ST1101

1. Aim: To give required training in office automation packages to give necessary hands on training in MS-Office software, so that the student will have employment opportunity in private business firms and also for self employment.
2. Duration of the course : 60 Hrs. (with in 3 months period)
3. Eligibility for admission : SSLC or equivalent
4. Sanctioned Intake : 40 students/batch
5. Course Fee : Rs. 1,500/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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{Course Code : ST1101}



INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

**Short-term Course on MS-Office & Internet**

[Scheme 2011] Duration: 60 Hrs.

**Module 1 : Windows**

(10 Hrs)

Computer fundamentals, DOS commands, introduction to windows, GUI, Operation of mouse, click, double click, drag, selection, desktop, taskbar, icon, start button, paint, word pad, files, folders, explorer, control panel

**Module 2 : MS-Word**

(20 Hrs)

Word processing package, features, MS Word menu, Windows parts, creating document, Saving, Editing.

Formatting text – Selection, Copying, Moving, Deleting, Inserting, Undo, Redo, Line spacing, Newspaper Column.

Formatting Paragraph - Margins, Bullets & Numbering, Edit menu, Headers, Footers, Page layout.

Tables – Creation, Editing, Formatting, Table insertion, Document with table.

Mail merge, Template Creation.

**Module 3 : MS-Excel**

(15 Hrs)

Electronics Spread sheet, Features, Menu, Cells, Rows, Columns, saving worksheet, selecting cells, entering, copying formula, auto sum, functions, re arranging, worksheet moving, copying, deleting, sorting.

Formatting cells & cell contents, insert/ delete row, column, freezing, splitting, hide/ unhide, cell protection.

Drawing Graph, types of graphs, title, legends – saving, if comment, moving, copying between sheets

**Module 4 : MS-Power Point**

(5 Hrs)

Introduction, slide selection, inserting pictures, animation

**Module 5 : Internet**

(10 Hrs)

www, DNS, website, E-mail, chat, search engines

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## **Certificate Course on Computerised Office Management**

[Scheme 2011]

Course Code : ST1102

*(Special training programme conducted as per tie-up with MCIP, Corporation of Thiruvananthapuram)*

1. Aim: To give required training in Computerised office management packages and master supporting skills.
2. Duration of the course : 110 Hrs. (Within 3 months period)
3. Eligibility for admission : SSLC or equivalent
4. Intake : 40 students/batch
5. Course Fee : Rs. 1,000/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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[Course Code : ST1102]



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## **Certificate course in Computerised Office Management**

[Scheme 2011]

### **Module 1: Introduction to Windows**

Windows Basics, The user interface, Windows accessories, Miscellaneous Windows features, Files and Folders, Windows Explorer, Control panel.

**Module 2: MS Word** Word processing features, Document Preparation, Formatting a document, Creating Tables, Macros, Mail Merge, Printing a document.

**Module 3: MS Excel** Excel Work Books, Entering Data, Editing, Worked with named Ranges, Creating formulas, Excel charts, Excel Database, Macros, Data Analysis, if, analysis, Printing.

**Module 4: Microsoft Access** What is a Database, Creating Tables, Assigning field names, Data types, designing a table, Basics of queries, Working with criteria, Relational Queries, Sorting, Working with Forms, placing bound controls, changing colors and effects, Working with Reports, Reports types, Printing.

**Module 5: Microsoft PowerPoint** Overview and Users of Power Point, Creating a Presentation, Slide layout, Slide design, Creating a Presentation using, Normal, Slide, Outline, Slide Sorter, Slide Show, Notes, Slide Master, Controlling Transitions between Slides, Animating Different Parts of a Slide, Inserting a Motion Clip, Including Sounds in Slides, Showing a Presentation, Rehearsing/ Timing a Presentation.

### **Module 6: Introduction to PageMaker**

Introduction, Traditional Publishing process, Hardware and software requirements, Working with a publication, Drawing tools, Text tool, Fonts, Colors, Importing Graphics, Story Editor, Style Sheets, Long Documents Features, Utilities.

### **Module 7: Internet Technology**

Basics of Computer Communications, Network topologies, Evolution of Internet, Equipments required for internet Connection, World Wide Web, Web Browser, Search engines, E-Mail Concepts, Searching & Chatting.

### **Module 8: DOS**

Concept of Disk Operating Systems and simple DOS commands, date, time, cd,md, copy, ren, del, copy con, type

### **Module 9: Introduction to Linux**

Concept of open and free software, Survey of Linux distribution, Starting a terminal, file and directory commands, cat, ls, cp, mkdir, cd, rmdir, passwd etc, Familiarization to open office components, open office writer, open office calc, open office impress.

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## **Certificate Course in DESKTOP PUBLISHING**

[Scheme 2011]

Course Code : ST1501

*(Special training programme conducted as per tie-up with MCIP, Corporation of Thiruvananthapuram)*

1. Aim: To give required training in desktop publishing packages and master supporting skills.
2. Duration of the course : 110 Hrs. (Within 3 months period)
3. Eligibility for admission : SSLC Passed + Computer Awareness
4. Intake : 30 students/batch
5. Course Fee : Rs. 1,500/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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[Course Code : ST1501]



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## **Certificate course in Desktop Publishing**

[Scheme 2011]

### **Module 1: MS-Word**

Familiarization of word processing using Ms-word

### **MODULE 2: Adobe PageMaker 7.0:**

Introduction to desktop publishing, Introduction to Page Maker advantages, Using the mouse - Components of the Page Maker window, Creating Publications, Creating a new document, Setting the margins, Setting the page size, Changing the page orientation, Setting page numbers, Changing the page size view, Creating new document windows, Displaying the rulers, Changing the rulers, Using rulers, Using guidelines, Positioning guidelines, Adding guidelines to master pages, Aligning to guidelines, Displaying guidelines, Locking guidelines, Formatting types, Changing character specification, Saving your documents, Developing paragraph, Formatting paragraph, Creating frames, Converting other objects to frames, Threading and Unthreading text, Threading additional text, Threading text to different page, Unthreading text blocks, Rethreading text blocks, Making text blocks, Disappear without deleting, Selecting and dragging text, Editing, deleting text, cut copying and pasting text, Viewing the contents of clipboard, using undo and revert, adding design elements, Introduction to auto flow, PageMaker plug-ins, Drop cap, Change case, Bullets and Numbering, Adding design elements.

### **Module 3: Adobe Photoshop**

Introduction, Getting stock image tools, Getting images into Photoshop, Creating new images, Selecting colors and display, Saving and developing image code, Selecting tools, path, mask, editing, layers, filter, Saving and developing images, retouching a photography, Remove a stain from a photo, Remove blemishes, Rubbing out an unwanted person, Repairing the cracked photography, Cloning a pattern, Cropping an image, Making things appear small-Wrinkled photograph, Faded photograph, Working with fixed media, Familiarization with CorelDraw, Adding graphics to your document, Adding lines, Changing lines specification, Adding shapes, Changing shape Specification, Changing line and fill specification together (fill & stroke), Changing round corners, Creating drops shadow boxes, Text wrap, Changing PageMaker options, Adjusting margins, Setting and adjusting columns, Setting unequal width columns, Creating headers and footers, Creating graphics in PageMaker, Rotating text, skewing and mirroring objects with the control palette, Setting up Master page Templates, Creating custom page sizes, Creating custom borders, Creating newspaper template, Creating new Master page, Saving an existing page as a master, Setting up custom styles, Defining styles, Creating, editing, removing styles, Copying styles, Layers palette, Moving and creating objects, Printing Selecting a printer, Printing your document, Printing document dialog box options, Using Pagemakers default color palette, Opening color palette, Adding color to text, Working with color graphics, Defining custom colors, Creating text screens, Using story editor, How the story editor names stories, Switching between story editor and layout editors, closing story editor and placing the story editor, Difference between story editor and layout editors, Checking your spelling, Starting the speller, Correcting the misspelled words, Correcting duplicate words, Adding words to the different dictionaries, Correcting duplicate words, using find features – Using the change feature – Creating an index- Using page maker help.

#### **Module 4: Illustrator**

Illustrator Overview – Graphics overview- Raster – Vector – Printing – Creating new drawings and opening old ones- Page setup- Rulers, grids and guidelines – Smart guides – Smart guide preferences – Selecting an object – Templates – Illustrator’s design tools- Grid - Art board/workspace- Setting preferences/customizing – Saving work – Exporting work as a bitmap.

#### **MODULE 5:Corel Draw**

Tools in detail - Understanding Vector Graphics & Colors- Setting & Familiar with Corel Draw environment – Working with Corel draw tools & multiple pages – Understanding menus of Corel Draw, basic object creation, editing and alignments of objects- Adjustments, transformation & Corrections of objects, Importing images & Placing images, Using of fonts & giving text effects, Pattern & Logo designing, designing techniques, Printing text & Objects.

#### **MODULE 6:Adobe Acrobat**

Introduction – Document files – Images- Graphics – Spreadsheets – Limitations of the existing document files – PDF files & formats – Features of Acrobat reader – Using Acrobat reader – Reading PDF files – Features of Acrobat Writer – Using Acrobat Writer – Conversion of text files, images, graphics, spread sheet etc. Comparison of PDF with original file – Portability of PDF.

#### **Module 7: Internet Technology**

Basic of Computer communications – Network Models – Evolution of internet equipment required for internet connection – World Wide Web –email concepts, searching and chatting – Key board practice (Malayalam)

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## **Short-term Course on Embedded System & Image Processing**

[Scheme 2015]

Course Code : ST1502

1. Aim: To give required training in embedded system designing and master supporting programming skills.
2. Duration of the course : 80 Hrs. (Within 3 months period)
3. Eligibility for admission : Plus two / Diploma / ITI / Above
4. Intake : 40 students/batch
5. Course Fee : Rs. 4,500/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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[Course Code : ST1502]



INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

## SHORT-TERM COURSE ON Embedded System & Image Processing

[Scheme 2015]

Duration: 80 Hrs.(Theory : 20 Hrs, Practical : 60 hrs)

### Module 1 : Embedded Systems

(12 Hours)

Introduction to Embedded Systems, Processor Technology, Single-purpose processors, General-purpose processors. Introduction to Memory types. Software – Basic architecture, Operation, Introduction to peripherals – Timers , Counters and WDTs, UART, PWM, LCD Controllers, Keypad Controllers, Stepper motor Controllers, A to D Converters, Real Time Clocks. Introduction to sensors : Temperature, Force, Pressure, Humidity, Magnetic field, Proximity, IR, MEMS Accelerometer and Gyroscope. Introduction to peripheral data interfacing: Serial, Parallel & Wireless. GSM and GPS applications

### Module 2: Embedded Software Design

(30 Hours)

Embedded System Programming: C Fundamentals, Operators and Operations, Data Input and Output, Control Statements, Functions & Program Structure, Arrays & Pointers.

Microcontrollers: PIC, AVR, Arudino, ARM. Addressing Modes & Programming Methods, Instruction Set, Assembler Directives, Timers & Counters, Interrupts.

Introduction to network for Embedded Systems – 12C – CAN Bus – Bluetooth – SPI – USB – Ethernet protocol – TCP/IP Protocol – Internet connectivity over an Ethernet connection – Wireless standards

### Module 3 : Digital Image Processing

(8 Hours)

Introduction, Digital Image Fundamentals, Image Transforms, Image Enhancement, Image Restoring, Image Compression, Biomedical image processing, Artificial neural network, Biometric applications, Steganography, Watermarking.

### Module 4 : Programming in MATLAB

(30 Hours)

Introduction to matlab software, basic operations, Display of Grayscale / Color Images, Histogram Equalization, gray scale conversion, Non-linear Filtering, Edge detection using Operators. 2-D DFT and DCT. Filtering in frequency domain, Display of color images, conversion between color spaces, DWT of images, Segmentation using Watershed transform. Hough transformation, Color space conversion, Neural network training.

Hardware Implementation : Basics of computer vision, basic programming in python, Introduction to Raspberry Pi and Beaglebone SBC boards.

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## **Short-term Course on Computerised Financial Accounting using Tally**

[Scheme 2018]

Course Code : ST1801

1. Aim: To give required training in Computerised Financial Accounting principles and methods and to give necessary hands on training in Tally.ERP9 software, so that the student will have employment opportunity in private business firms and also for self employment.
2. Duration of the course : 75 Hrs. (with in 3 months period)
3. Eligibility for admission : Plus two or equivalent
4. Sanctioned Intake : 40 students/batch
5. Course Fee : Rs. 3,000/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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[Course Code : ST1801]



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## Short-term Course on Computerised Financial Accounting using Tally

[Scheme 2018] Duration: 75 Hrs.

### Module 1 : Introduction to Computers

(5 Hrs)

Concept of Hardware and Software - Block diagram - functional units - Input, Output, Memory, CPU.  
Familiarization of IO-Devices - Keyboard, mouse (optical, wireless), scanners – Monitors - Printers -Type of printers - Dot matrix, Inkjet, Laser, Thermal. - Familiarization of IO ports – Concept of Networks  
Software - System software - Operating system - Application Software

### Module 2 : Accounting Principles

(10 Hrs)

Accounting-Need of accounting-Transaction-Types of Accounts-Analyzing a transaction- Debits and Credits-Accounting principles-Accounting concepts-Accounting conventions-Common terms-Accounting cycle-Source documents-Journal-Ledger-Trail balance-Final accounts-Trading&Profit and loss account-Balance sheet-Final accounts with adjustments

### Module 3 : Computerized Accounting

(5 Hrs)

Computerized Accounting-Limitations of manual accounting-Advantages of computerized accounting-Features of computerized accounting

### Module 4 : Using Tally Accounting software

(20 Hrs)

Tally- Features of Tally - Gateway of Tally-Company creation – Select/Shut/Alter/Delete a company-Voucher types - Accounting Groups - Managing and operating groups - Ledger-Single /multiple ledger-creation/altering/displaying/deleting - Accounting vouchers - entry/alter/delete vouchers - Final accounts – Reports - Trial balance, Income & expenditure, Balance sheet – Printing.

### Module 5 : Inventory Management

(15 Hrs)

Inventory-Stock Groups-Stock categories - Godowns- Units of measure-Stock items-Inventory vouchers and reports-Stock journal-Manufacturing Journal-Price list-Orders and reports

### Module 6 : Additional Reports

(10 Hrs)

Bank reconciliation statement-Cost centre-Budget-Interest calculations-Scenario management-Accounts with inventory - Group Company

### Module 7: Duties and Taxes

(10 Hrs)

Methods of duties and taxes in Tally-Sales Tax-VAT-GST (Goods and Services Tax)

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**Short-term Course on  
COMPUTER HARDWARE AND NETWORK MAINTENANCE**

[Scheme 2018]

Course Code : ST1802

1. Aim: To give required training in basic Computer Hardware and Network maintenance methods. Also to provide necessary hands on training in Computer Hardware, Network troubleshooting and repair, so that the student will have employment opportunity in private service firms and also for self employment.
2. Duration of the course : 90 Hrs. (Within 3 months period)
3. Eligibility for admission : SSLC or equivalent
4. Intake : 40 students/batch
5. Course Fee : Rs. 4,000/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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**Short-term Course on COMPUTER HARDWARE AND NETWORK MAINTENANCE**

[Scheme 2018] Duration : 90 Hrs.

**Module 1: Basic Electricity**

(20Hrs. 6 hrs. Theory + 14 hrs Practical)

- a. Measuring of AC supply voltage - Phase/Neutral/Earth Voltage
- b. Measuring DC Voltage
- c. Need for proper Earthing
- d. Power Sources
- e. UPS (Online and Offline) and invertors
- f. identify fuses, types of switches, checking of fuses, switches, lamps  
Importance of Electrostatic Discharge (ESD) - Methods to avoid Electrostatic charge.
- g. Familiarization and handling of tools - Hand tools (Screw drivers, Spanners, Pliers, Hammers, Cable crimping tools, strippers, Drilling tools etc) necessity of using proper tools
- h. Familiarization and handling of Equipments - MultiMate, DSO, Cable Tester etc.

**Module 2 : Basic Electronics**

(10 Hrs. - 4hrs.Theory + 6hrs Practical)

- a) Identity, testing and measuring of different types of resistors, capacitors, inductors
- b) Soldering and disordering of components in PCB.
- c) Identify and testing of diodes, transistors, construct bridge rectifier, half wave and full wave reciters.
- d) Filters for rectifiers, voltage regulator circuits.
- e) Assemble and test a unregulated and regulated power supply working of SMPS and testing.

Digital Electronics - Binary Number system and Logic gates AND, OR, NOT, OR, NAND, NOR and XOR gates. Basics of flip-flops.

**Module 3 : Computer Fundamentals & Assembling**

(20Hrs. - 8 hrs. Theory + 12 hrs Practical)

Introduction to Computer, Functional Blocks of a computer

Identification and Handling of different hardware components - SMPS, MBD, Processor, Memory Modules, Hard Disk, CD/DVD Drives, and USB drives, Mouse, Keyboard, Printers, Scanners, Monitor etc.

- a. Processor Makes, Slot Types,
- b. Memory makes Slot type, Size, Category, and Frequency
- c. Hard disk makes, Connector type, RPM, Data rate, Redundancy
- d. SMPS form factor, pin Voltages, Connectors, measuring Voltages
- e. Motherboard form factor, I/O ports, Data ports, interface connectors
- f. Monitor interfacing (VGA, HDMI, AV etc.)
- g. Speaker and headphone interfacing
- h. Printer and Scanner Interfacing

**Assembling of Desktop Computer**

- a. Preparation of Configuration
- b. Preparation of Work Place for assembling computer
- c. Assembling Steps

**Module 4 Operating Systems**

(20Hrs. - 4 hrs. Theory + 16 hrs Practical)

Installation and Configuration of Operating System

- a. File system type - FAT16, FAT32, exFAT, NTFS, EXT3, EXT4
- b. Partitioning the hard disk
- c. installation of OS - Windows 7, Win 8, Win 10, Linux different distributors
- d. Device Driver installation
- e. Peripheral installation and Configuration
- f. Application software installation and configuration
- g. OS licensing and updating
- h. User Creation
- i. Network Configuration
- j. Installation of antivirus software

Linux operating system - Installing LINUX - Adding new users, software, material components

Installing a printer and carrying self- test. Scanner –Installation, configuration

Trouble Shooting

- a. Hard ware and peripheral
- b. Operating system

**Module 5 : Networking**

(20Hrs. - 8 hrs. Theory + 12 hrs Practical)

- a. Components of the Computer Networks wired and Wi-Fi.
- b. Familiarization with various Network devices, Connectors and Cables. Understanding the Layout of network. Crimping and practice with straight and cross CAT 6 cables.
- c. Install & configure a Network. Network Components –Modems, Firewall, Hubs, Bridges, Routers, Gateways, Repeaters, Switches, Access point, etc.– their types, functions, advantages and applications.
- d. IP Routing in Network .IP Addressing & TCP/IP. IP addressing technique (IP4/IP6) and Subnetting and Supernetting the network.
- e. Installation and Configuration of TCP/IP Protocol.
- f. Practice TCP/IP Utilities : PING,IPCONFIG,HOSTNAME,ROUTE, TRACERT
- g. Protocols, TCP/IP, FTP, Diagram Telnet etc., Theory on subnet Setting IP Address (IP4/IP6) super net & Subnet Mask, Classes of IP Addressing .
- h. Simple Mail Transfer Protocol (SMTP), Telnet, File Transfer Protocol (FTP), Hyper Text Transfer Protocol (HTTP), Simple Network Management Protocol.
- i. Sharing Resource &Internet connection. Sharing Resource and Advance Sharing Setting. Basics of Proxy Server. Exposure and using Internet. Setting E-mail accounts. Installing and Configuring Internet Connection on a PC using Broadband or Dongle.
- j. Network Security Practice on firewall technologies to secure the network perimeter.
- k. Internet and Web Browser Practice web browsing using popular web browsing software, Configuring web browser. Search for content using popular search engines.

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Thiruvananthapuram  
February 21, 2018

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## **Short-term Course on PROGRAMMING IN C**

[Scheme 2018]

Course Code : ST1803

1. Aim: To give required training in programming in C language and master programming skills.
2. Duration of the course : 75 Hrs. (Within 3 months period)
3. Eligibility for admission : SSLC or equivalent
4. Intake : 40 students/batch
5. Course Fee : Rs. 3,000/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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April 12, 2018

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**SHORT-TERM COURSE ON PROGRAMMING IN C**

[Scheme 2018] Duration: 75 Hrs.

**Module I: Introduction (30 Hrs)**

- a) Concept of Hardware and software
- b) Introduction to Number Systems-Binary, Decimal, Octal, hexadecimal
- c) C character set, tokens, Data Types, Variables and Constants
- d) Operators and Expressions,
- e) Basic structure of C program,
- f) Types and Declarations: Types- character, integer, floating point, void, enumerated.
- g) Conditional statements and loops - Declarations – structure-multiple names scope, initialization.
- h) Function declaration, argument passing, return value
- i) Recursive functions
- j) Arrays -one and two dimensional
- k) Pointers - new, delete operators - pointer to arrays
- l) Sorting-Selection sort, Bubble sort
- m) Searching - Linear search, Binary search
- n) Pointer to void and pointer to function.

**Module II: Data structures (20 Hrs)**

- a) Data structures – Data Structure, Classification of data structures, Operations on data structures
- b) Stack, Implementation of Stack, Concept of Operations on Stack.
- c) Queue, Implementation of queue, Concept of Operations on queue, Concept of Circular queue.
- d) Concept of Linked List, Concept of Implementation of linked list
- e) Algorithms- bubble sort, merge sort, quick sort

**Module III: Structure and Pointers (15 Hrs)**

- a) Structures-Defining a Structure, declaring structure variables, accessing structure elements, passing structure to Functions as value and reference argument/parameter, Function returning structure,
- b) Array of structures, passing an array of structure as an argument/ a parameter to a function.

**Module IV: Data File Handling (10 Hrs)**

- a) Need for a data file, Types of data files – Text file and Binary file;
- b) Basic file operations on text file: Creating/Writing text into file, Reading and Manipulation of text from an already existing text File (accessing sequentially);
- c) Binary File: Creation of file, writing data into file, searching for required data from file, Appending data to a file, Insertion of data in sorted file, Deletion of data from file, Modification of data in a file;

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## **Short-term Course on PROGRAMMING IN C++**

[Scheme 2018]

Course Code : ST1804

1. Aim: To give required training in programming in C++ language and master programming skills.
2. Duration of the course : 75 Hrs. (Within 3 months period)
3. Eligibility for admission : SSLC or equivalent
4. Intake : 40 students/batch
5. Course Fee : Rs. 3,500/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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**SHORT-TERM COURSE ON PROGRAMMING IN C++**

[Scheme 2018] Duration: 75 Hrs.

**Module I: Introduction (20 Hrs)**

- a) Concept of Hardware and software
- b) Introduction to Number Systems-Binary, Decimal, Octal, hexadecimal
- c) C++ character set, tokens, Data Types, Variables and Constants
- d) Operators and Expressions,
- e) Basic structure of C++ program,
- f) Types and Declarations: Types- Boolean, character, integer, floating point, void, enumerated.
- g) Conditional statements and loops - Declarations – structure-multiple names scope, initialization.
- h) Function declaration, argument passing, return value
- i) Recursive functions
- j) Arrays -one and two dimensional
- k) Pointers - new, delete operators - pointer to arrays
- l) Sorting Techniques-Selection sort, Bubble sort
- m) Searching Methods-Linear search, Binary search-constants, reference pointer,
- n) Pointer to void and pointer to function.

**Module II: Object Oriented Programming (20 Hrs)**

- a) Object Oriented Programming: Concept of Object Oriented Programming-**abstraction**, encapsulation, inheritance, and polymorphism Classes- Object - private, public, protected variables.
- b) Function overloading, operator overloading
- c) Friend function, derived classes, polymorphism, virtual function, Friend function
- d) Functions inside and outside a class-scope resolution operator (::) files and streams Library functions for file and string operations

**Module III: Data structures (20 Hrs)**

- a) Data structures – Data Structure, Classification of data structures, Operations on data structures
- b) Stack, Implementation of Stack, Concept of Operations on Stack.
- c) Queue, Implementation of queue, Concept of Operations on queue, Concept of Circular queue.
- d) Concept of Linked List, Concept of Implementation of linked list
- e) Algorithms- bubble sort, merge sort, quick sort

**Module IV: Structure and Pointers (15 Hrs)**

- a) Structures-Defining a Structure, declaring structure variables, accessing structure elements, passing structure to Functions as value and reference argument/parameter, Function returning structure,
- b) Array of structures, passing an array of structure as an argument/ a parameter to a function.
- c) Introduction to Files

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**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**  
(Established by Govt. of Kerala)  
Thiruvananthapuram, Kerala.

## **Short-term Course on Web Designing**

[Scheme 2018]

Course Code : ST1805

1. Aim: To give required training in web site designing and master supporting programming skills.
2. Duration of the course : 90 Hrs. (Within 3 months period)
3. Eligibility for admission : SSLC or equivalent
4. Intake : 40 students/batch
5. Course Fee : Rs. 5,000/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

Thiruvananthapuram  
April 12, 2018

Sd/-  
Director



**SHORT-TERM COURSE ON WEB DESIGNING**

[Scheme 2018] Duration: 90 Hrs.

**Module I: Web Technology (15 Hrs)**

- a) Need of secure communications.
- b) Web server and web hosting.
- c) static and dynamic web pages.
- d) the difference between programming languages and scripts.
- e) different types of scripting languages.
- f) different types of scripting languages.
- g) the basic HTML tags.
- h) Lists fundamental HTML tags and attributes.
- i) Classifies HTML tags.
- j) Identifies the formatting tags and attributes.
- k) Identifies the similarities and differences among formatting tags.
- l) Uses the tags <PRE> and <DIV>.
- m) Provides scrolling to the objects and contents in a web page.
- n) Uses <FONT> Tag to make text attractive.
- o) Uses comments in HTML.
- p) Inserts images into html documents.

**Module II: Web Designing using HTML (10 Hrs)**

- a) Distinguishes various types of lists available in HTML.
- b) Links various web pages and sections within a webpage.
- c) Embeds various audio, video files in a webpage.
- d) Embeds inline audio video.
- e) Lists various tags and attributes in creating a table.
- f) Compares tags such as TD TH and their attributes and uses.
- g) Illustrates the creation of Table.
- h) Illustrates the use of frames and framesets.
- i) Creates frames.
- j) Explains the use of forms in HTML.
- k) Lists the use of forms in html and its components.
- l) Creates a webpage with all the features discussed so far.

**Module III: Client Side Scripting Using Javascript (15 Hrs)**

- a) Distinguishes the use of client side and sever side scripting language.
- b) Explains the need of client side scripting language.
- c) Identifies the importance of JavaScript as the client side scripting language.
- d) Uses JavaScript functions in a web page.
- e) Explains different data types in JavaScript.
- f) Uses correct variables in JavaScript.
- g) Uses appropriate control structures in program codes.
- h) Uses appropriate built-in functions in JavaScript.
- i) Explains the method to access document elements using JavaScript.
- j) Creates JavaScript functions that handle values in text boxes and combo boxes.

### **Module III: Web Hosting (10 Hrs)**

- a) Describes the use of a web server and the concept of web hosting.
- b) Classifies different types of hosting.
- c) Explains the ways to buy hosting space.
- d) Registers a domain and hosts a website using FTP client software.
- e) Explains the features of free hosting.
- f) Identifies the use of Content Management Systems.
- g) Describe the need for responsive web design.

### **Module IV: Database Management System (15 Hrs)**

- a) Recognizes the need for files.
- b) Identifies the major limitations of the conventional file management system.
- c) Lists and explains the different advantages of the database management system.
- d) Lists the various components of the DBMS and explains their purpose.
- e) Recognizes the types of users and their roles in the DBMS environment.
- f) Explains the levels of data abstraction and data independence in DBMS.
- g) Explains the relational model by citing examples.
- h) Uses the different terminologies in RDBMS appropriately.
- i) Applies and evaluates the various operations in relational algebra.

### **Module V: Structured Query Language (10 Hrs)**

- a) Recognizes the importance and features of Structured Query Language.
- b) Explains the components of SQL. Distinguishes the features of DDL, DML and DCL commands.
- c) Identifies the characteristics of MySQL Lists different data types and their features.
- d) Explains the effect of different constraints.
- e) Performs operations using DDL commands like CREATE, ALTER, DROP.
- f) Uses DML commands like SELECT, INSERT, UPDATE, DELETE for data manipulation, Identifies various clauses associated with SQL commands and their purpose. Uses operators for setting different conditions.
- g) Lists different aggregate functions and their usage.
- h) Constructs nested queries for information retrieval.

### **Module VI: Server Side Scripting Using PHP (15 Hrs)**

- a) Lists the benefits of using PHP.
- b) Explains the syntax of PHP code.
- c) Illustrates various data types and operators used in PHP.
- d) Constructs code from algorithm using control and looping structures in PHP.
- e) Identifies the difference and use of different types of array.
- f) Designs PHP functions for common tasks.
- g) Describes the client server environment.
- h) Selects the appropriate data submitting methods for different scenarios.
- i) Identifies the role of database connectivity in the creation of dynamic webpages.

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**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**  
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## **Short-term Course on ELECTRONICS**

[Scheme 2019]

Course Code : ST1901

1. Aim: To give required training in basic Computer Hardware and Network maintenance methods. Also to provide necessary hands on training in Computer Hardware, Network troubleshooting and repair, so that the student will have employment opportunity in private service firms and also for self employment.
2. Duration of the course : 60 Hrs. (Within 3 months period)
3. Eligibility for admission : 8<sup>th</sup> Standard or above
4. Intake : 40 Students/batch
5. Course Fee : Rs. 3,500/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

Thiruvananthapuram

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Director



**Short-term Course on ELECTRONICS**

[Scheme 2019] 60 hrs

**Module 1: Introduction to Electricity**

(6 Hrs.)

**Understanding voltage and current, AC and DC signals**

- a) Wiring a lamp circuit with switch and battery.
- b) Introduction to multimeters
- c) Measurement of voltage and current
- d) Types of batteries.

**Module 2: Introduction to Electronics**

(10 Hrs.)

**Passive Components:**

**Resistors:**

- a) Color coding scheme
- b) Measurement of resistance using multimeter.
- c) Observing the effect of putting resistor in the lamp circuit.
- d) Resistors in parallel and series.
- e) Ohm's law
- f) Measurement of current flow through resistors connected across voltage source.
- g) Variable resistors.
- h) Potential divider network

**Capacitors:**

- i) Capacitors-Types and value ranges.
- j) Circuit to visualize charging and discharging of a capacitor.
- k) Basics of Inductors.

**Module 3: Active Components**

(10hrs)

**Diodes:**

- a) Types, currents and voltage rating, Forward bias voltage.
- b) Circuit to experiment basic operation of a diode.
- c) Brief introduction to LED's.

**Transistors:**

- d) Transistors- Types and packages.
- e) Introduction to datasheets.
- f) Checking transistors using a multi-meter.



**Module 4: Introduction to circuit diagrams and PCB's** (10 Hrs.)

- a) Electric component symbols
- b) Interpreting circuit diagrams.
- c) Introduction to breadboards.
- d) Wiring a circuit in a breadboard.
- e) Printed circuit Boards-Basics, Types

**Module 5: Soldering Practice** (6 Hrs.)

- a) Introduction –Soldering iron, Solder, Soldering flux
- b) Wire joints

**Module 6: Power Supplies** (6 Hrs.)

- a) Transformers
- b) AC and DC power sources
- c) Operation of a diode as a rectifier.
- d) Half-Wave and Full-Wave rectifier circuits.
- e) Use of capacitor

**Module 7: Integrated Circuits** (5 Hrs.)

- a) Types of IC's-Linear and digital IC's, Regulator ICs
- b) Wiring and testing of hobby circuits

**Module 8: Working with Computer** (7 Hrs.)

- a) Computer Basics-Hardware, Software
- b) Basic of Computer networks; LAN, WAN
- c) Concept of Internet; Applications of Internet; connecting to internet
- d) Using e-governance website
- e) Basics of electronic mail; getting an email account, Sending and receiving emails
- f) Mobile phone technology- Mobile Operating Systems-Android, iOS, windows-different versions
- g) Simulation of different electronic circuits

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Thiruvananthapuram  
11-03-2019

Sd/-  
Director



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**  
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Thiruvananthapuram, Kerala.

**Short-term Course on IT MASTER**

[Scheme 2019]

Course Code : ST1902

1. Aim: To give required training in basic Computer Hardware and Network maintenance methods. Also to provide necessary hands on training in Computer Hardware, Network troubleshooting and repair, so that the student will have employment opportunity in private service firms and also for self employment.
2. Duration of the course : 60 Hrs. (Within 3 months period)
3. Eligibility for admission : 8<sup>th</sup> Standard or above
4. Intake : 40 Students/batch
5. Course Fee : Rs. 3,500/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

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Director

[Course Code : ST1902]



INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

## Short-term Course on IT MASTER

[Scheme 2019] 60 hrs

### Module 1: Knowing computer

(5 Hrs)

- a) What is Computer, Basic Applications of Computer
- b) Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse
- c) Other input/output Devices
- d) Computer Memory
- e) Concepts of Hardware and Software
- f) Concept of Computing, Data and Information
- g) Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.

### Module 2: Operating Computer using GUI Based Operating System

(5 Hrs)

- a) What is an Operating System
- b) Basics of Popular Operating Systems; The User Interface
- c) Using Mouse; Using right Button of the Mouse and Moving Icons on the screen
- d) Use of Common Icons, Status Bar
- e) Using Menu and Menu-selection
- f) Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders
- g) Opening and closing of different Windows; Using help; Creating Short cuts
- h) Basics of O.S Setup; Common utilities.

### Module 3: Understanding Word Processing

(15 Hrs- 5hrs.Theory + 10hrs Practical)

- a) Word Processing Basics; Opening and Closing of documents
- b) Text creation and Manipulation, Formatting of text
- c) Table handling
- d) Spell check, language setting and thesaurus
- e) Printing of word document.

### Module 4: Using Spread Sheet

(15 Hrs- 5hrs.Theory + 10hrs Practical)

- a) Basics of Spreadsheet
- b) Manipulation of cells
- c) Formulas and Functions
- d) Editing of Spread Sheet
- e) Printing of Spread Sheet.

**Module 5: Making Small Presentation**

(7 Hrs-2hrs.Theory + 5hrs Practical)

- a) Basics of presentation software
- b) Creating Presentation; Preparation and Presentation of Slides; Slide Show;
- c) Taking printouts of presentation / handouts.

**Module 6: Introduction to Internet, WWW and Web Browsers**

(5 Hrs)

- a) Basic of Computer networks; LAN,WAN;
- b) Concept of Internet; Applications of Internet; connecting to internet;
- c) What is ISP, Knowing the Internet;
- d) Basics of internet connectivity related troubleshooting,
- e) World Wide Web, Web Browsing software, Search Engines;
- f) Understanding URL; Domain name; IP Address;
- g) Using e-governance website

**Module 7: Communications and collaboration**

(8 Hrs)

- a) Basics of electronic mail; getting an email account, Sending and receiving emails; Accessing sent emails; Using Emails; Document collaboration
- b) Instant Messaging
- c) Mobile phone technology- Mobile operating systems-Android, ios, windows-different versions
- d) Mobile apps and Online stores
- e) online products (Google drive, sheets etc)

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Thiruvananthapuram  
11-03-2019

Sd/-  
Director



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**Short-term Course on 3D Printing**

[Scheme 2020]

Course Code : ST2001

1. Aim: To recognize the basics of printing which help the students to acquire the knowledge of 3D printing in current scenario and enables them for employment in private & public sectors.
2. Duration of the course : 100 Hrs. (Within 3 months period)
3. Eligibility for admission : Plus two or above
4. Intake : 40 Students/batch
5. Course Fee : Rs. 3,000/-+GST applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test conducted by the training centre.

Thiruvananthapuram  
January 01 , 2020.

Sd/-  
Director

[Course Code : ST2001]



INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

## Short-term Course on 3D Printing

[Scheme 2020] Duration: 100 hrs

**Module 1: Introduction to printing industry.** (6 Hrs)

Introduction to printing industry -History of printing ,basics of printing & printing industry-kinds of D's and printing -3D printing –Basics of prototyping ,3D packaging, 3D advertising ,3D modeling ,3D miniatures,3D homes-Materials used for 3D printing.

**Module 2: Basic printing knowledge and various printing methods.** (6 Hrs)

Structure of a printing press-introduction of basics of pre-press, press and post-press-safety in press-flexography- printing-offset, screen, digital printing.

**Module 3: Introduction to 3D printing.** (5 Hrs)

Connection between printing and 3D printing-3Dprinting importance, influence, simplicity.

**Module 4: 3D printing in various industries.** (10Hrs)

3D printing advantages and disadvantages-3D packaging, advertising, modeling, homes, fashion designing ,medical field ,customer products, film industry, construction works and other fields-commercial aspects of 3D printing-rapid prototyping - AM process-application and advantages of AM process.

**Module 5: 3D printing methods and techniques.** (8Hrs)

Stereo lithography technology and applications-DLP technology and applications- FDM technology and applications –SLS technology and applications -SLM technology and applications - EBM technology and applications -LDM technology and applications -BJ technology and applications.

**Module 6: Introduction to 3D printing software.** (25Hrs)

Basics of 3 D printing software-Sketch up tools and applications.

**Module 7: 3D designing and slicing and blending.** (28Hrs)

Basics of Designing and slicing and blending.

**Module 8: 3D printing machines.** (12Hrs)

3 D printing machines-Types, Parts, working, Advantages and disadvantages.

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Thiruvananthapuram  
January 01 , 2020.

Sd/-  
Director