



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

## **Training Programme on COMPUTER FOUNDATION COURSE (CFC)**

**1. AIM:**

The course is designed to aim at imparting a basic level appreciation programme for the common man. After completing the course the incumbent is able to use the computer for basic purposes of preparing his personnel/business letters, viewing information on Internet (the web), sending mails, using internet banking services etc.

This allows a common man or housewife to be also a part of computer users list by making them digitally literate. This would also aid the PC penetration program. This helps the small business communities, housewives to maintain their small account using the computers and enjoy in the world of Information Technology.

The module on financial literacy will enable the individuals to understand the various financial services and be aware of the various schemes of Government of India.

**2. Duration of the course : 20 Hours. (Theory: 10 hrs + Practical: 10 hrs.)**

- 15 days Theory- 10 days(1 Hr/day), Practical- 5 days (2 Hrs/day)
- This course can also be offered as 6 days intensive course.

**3. Eligibility for admission : Pass in 10<sup>th</sup> standard or equivalent**

**4. Intake : 40 students**

**5. Course fee : RS. 1000/-+GST**

**6. Eligibility for Certificate:**

- i) Student shall have minimum 75% attendance during the course.
- ii) Students shall pass the evaluation test conducted by the training centre.

Thiruvananthapuram  
Dated. 25.09.2021

Sd/-  
Director



INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

## Training Programme on COMPUTER FOUNDATION COURSE (CFC)

- 1. Knowing computer:** What is Computer, Basic Applications of Computer; Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Applications of ICT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.
- 2. Operating Computer using GUI Based Operating System:** What is an Operating System; Basics of Popular Operating Systems; The User Interface, Using Mouse; Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows; Using help; Creating Short cuts, Basics of O.S Setup; Common utilities.
- 3. Understanding Word Processing:** Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document.
- 4. Using Spread Sheet:** Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet, printing of Spread Sheet.
- 5. Introduction to Internet, WWW and Web Browsers:** Basic of Computer networks; LAN, WAN; Concept of Internet; Applications of Internet; connecting to internet; What is ISP; Knowing the Internet; Basics of internet connectivity related troubleshooting, World Wide Web; Web Browsing softwares, Search Engines; Understanding URL; Domain name; IP Address; Using e-governance website
- 6. Communications and collaboration:** Basics of electronic mail; Getting an email account; Sending and receiving emails; Accessing sent emails; Using Emails; Document collaboration; Instant Messaging; Netiquettes.
- 7. Making Small Presentation:** Basics of presentation software; Creating Presentation; Preparation and Presentation of Slides; Slide Show; Taking printouts of presentation / handouts.
- 8. Financial Literacy for Banking Scheme and Applications:** Why savings are needed, Why save in a bank, Banking products-ATM card, Banking Instruments-Cheque, Demand Draft (DD), Banking Services Delivery Channels, Know Your Customer (KYC), Opening of bank account and documents required, Types of bank accounts, Bank's services including remittances, loan, mobile banking, Overdraft, Pension etc., Pradhan Mantri Jan Dhan Yojana (PMJDY), password security and ATM withdrawal, Insurance, Social Security Schemes-Atal Pension Yojana (APY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Mudra Yojana (PMMY).

## **DETAILED SYLLABUS**

### **1. KNOWING COMPUTER**

- 1.0 Introduction
- 1.1 Objectives
- 1.2 What is Computer?
  - 1.2.1 Basic Applications of Computer
- 1.3 Components of Computer System
  - 1.3.1 Central Processing Unit
  - 1.3.2 Keyboard, mouse and VDU
  - 1.3.3 Other Input devices
  - 1.3.4 Other Output devices
  - 1.3.5 Computer Memory
- 1.4 Concept of Hardware and Software
  - 1.4.1 Hardware
  - 1.4.2 Software
    - 1.4.2.1 Application Software
    - 1.4.2.2 Systems software
- 1.5 Concept of computing, data and information
- 1.6 Applications of ICT
  - 1.6.1 e-governance
  - 1.6.2 Entertainment
- 1.7 Bringing computer to life
  - 1.7.1 Connecting keyboard, mouse, monitor and printer to CPU
  - 1.7.2 Checking power supply

### **2. OPERATING COMPUTER USING GUI BASED OPERATING SYSTEM**

- 2.0 Introduction
- 2.1 Objectives
- 2.2 Basics of Operating System
  - 2.2.1 Operating system
  - 2.2.2 Basics of popular operating system (LINUX, WINDOWS)
- 2.3 The User Interface
  - 2.3.1 Task Bar
  - 2.3.2 Icons
  - 2.3.3 Menu
  - 2.3.4 Running an Application
- 2.4 Operating System Simple Setting
  - 2.4.1 Changing System Date And Time
  - 2.4.2 Changing Display Properties
  - 2.4.3 To Add Or Remove A Windows Component
  - 2.4.4 Changing Mouse Properties
  - 2.4.5 Adding and removing Printers
- 2.5 File and Directory Management
  - 2.5.1 Creating and renaming of files and directories
- 2.6 Common utilities

### **3. UNDERSTANDING WORD PROCESSING**

- 3.0 Introduction
- 3.1 Objectives
- 3.2 Word Processing Basics
  - 3.2.1 Opening Word Processing Package
  - 3.2.2 Menu Bar
  - 3.2.3 Using The Help

- 3.2.4 Using The Icons Below Menu Bar
- 3.3 Opening and closing Documents
  - 3.3.1 Opening Documents
  - 3.3.2 Save and Save as
  - 3.3.3 Page Setup
  - 3.3.4 Print Preview
  - 3.3.5 Printing of Documents
- 3.4 Text Creation and manipulation
  - 3.4.1 Document Creation
  - 3.4.2 Editing Text
  - 3.4.3 Text Selection
  - 3.4.4 Cut, Copy and Paste
  - 3.4.5 Spell check
  - 3.4.6 Thesaurus
- 3.5 Formatting the Text
  - 3.5.1 Font and Size selection
  - 3.5.2 Alignment of Text
  - 3.5.3 Paragraph Indenting
  - 3.5.4 Bullets and Numbering
  - 3.5.5 Changing case
- 3.6 Table Manipulation
  - 3.6.1 Draw Table
  - 3.6.2 Changing cell width and height
  - 3.6.3 Alignment of Text in cell
  - 3.6.4 Delete / Insertion of row and column
  - 3.6.5 Border and shading

#### **4. USING SPREAD SHEET**

- 4.0 Introduction
  - 4.1 Objectives
  - 4.2 Elements of Electronic Spread Sheet
    - 4.2.1 Opening of Spread Sheet
    - 4.2.2 Addressing of Cells
    - 4.2.3 Printing of Spread Sheet
    - 4.2.4 Saving Workbooks
  - 4.3 Manipulation of Cells
    - 4.3.1 Entering Text, Numbers and Dates
    - 4.3.2 Creating Text, Number and Date Series
    - 4.3.3 Editing Worksheet Data
    - 4.3.4 Inserting and Deleting Rows, Column
    - 4.3.5 Changing Cell Height and Width
  - 4.4 Formulas and Function
    - 4.4.1 Using Formulas
    - 4.4.2 Function

#### **5. INTRODUCTION TO INTERNET, WWW AND WEB BROWSERS**

- 5.0 Introduction
  - 5.1 Objectives
  - 5.2 Basic of Computer Networks
    - 5.2.1 Local Area Network (LAN)
    - 5.2.2 Wide Area Network (WAN)
  - 5.3 Internet
    - 5.3.1 Concept of Internet
    - 5.3.2 Applications of Internet

- 5.3.3 Connecting to the Internet
- 5.3.4 Troubleshooting
- 5.4 World Wide Web (WWW)
- 5.5 Web Browsing Softwares
- 5.5.1 Popular Web Browsing Softwares
- 5.6 Search Engines
- 5.6.1 Popular Search Engines / Search for content
- 5.6.2 Accessing Web Browser
- 5.6.3 Using Favorites Folder
- 5.6.4 Downloading Web Pages
- 5.6.5 Printing Web Pages
- 5.7 Understanding URL
- 5.8 Surfing the web
- 5.8.1 Using e-governance website

## **6. COMMUNICATIONS AND COLLABORATION**

- 6.0 Introduction
- 6.1 Objectives
- 6.2 Basics of E-mail
- 6.2.1 What is an Electronic Mail
- 6.2.2 Email Addressing
- 6.3 Using E-mails
- 6.3.1 Opening Email account
- 6.3.2 Mailbox: Inbox and Outbox
- 6.3.3 Creating and Sending a new E-mail
- 6.3.4 Replying to an E-mail message
- 6.3.5 Forwarding an E-mail message
- 6.3.6 Sorting and Searching emails
- 6.4 Document collaboration
- 6.5 Instant Messaging and Collaboration
- 6.5.1 Using Instant messaging
- 6.5.2 Instant messaging providers
- 6.5.3 Netiquettes

## **7. MAKING SMALL PRESENTATIONS**

- 7.0 Introduction
- 7.1 Objectives
- 7.2 Basics
- 7.2.1 Using PowerPoint
- 7.2.2 Opening A PowerPoint Presentation
- 7.2.3 Saving A Presentation
- 7.3 Creation of Presentation
- 7.3.1 Creating a Presentation Using a Template
- 7.3.2 Creating a Blank Presentation
- 7.3.3 Entering and Editing Text
- 7.3.4 Inserting And Deleting Slides in a Presentation
- 7.4 Preparation of Slides
- 7.4.1 Inserting Word Table or An Excel Worksheet
- 7.4.2 Adding Clip Art Pictures
- 7.4.3 Inserting Other Objects
- 7.4.4 Resizing and Scaling an Object
- 7.5 Presentation of Slides
- 7.5.1 Viewing A Presentation
- 7.5.2 Choosing a Set Up for Presentation
- 7.5.3 Printing Slides And Handouts

- 7.6 Slide Show
- 7.6.1 Running a Slide Show
- 7.6.2 Transition and Slide Timings
- 7.6.3 Automating a Slide Show

## **8. FINANCIAL LITERACY FOR BANKING SCHEME AND APPLICATIONS**

- 8.0 Introduction
- 8.1 Objectives
- 8.2 Why Savings are needed?
  - 8.2.1 Emergencies
  - 8.2.2 Future Needs
  - 8.2.3 Large expenses
- 8.3 Drawbacks of keeping Cash at home
  - 8.3.1 Unsafe
  - 8.3.2 Loss of Growth Opportunity
  - 8.3.3 No Credit Eligibility
- 8.4 Why Bank is needed?
  - 8.4.1 Secure Money, Earn Interest, Get Loan
  - 8.4.2 Inculcate habit of saving
  - 8.4.3 Remittances using Cheque Demand Draft
  - 8.4.4 Avoid risk of chit funds, sahuikars
  - 8.4.5 Documents needed for opening a bank account
- 8.5 Banking Products
  - 8.5.1 Types of Accounts and Deposit
  - 8.5.2 Types of Loan and Overdrafts
  - 8.5.3 Filling up of Cheques, Demand Drafts
- 8.6 Banking Service Delivery Channels - I
  - 8.6.1 Bank Branch, ATM
  - 8.6.2 Bank Mitra with Micro ATM
- 8.7 Banking Service Delivery Channels - II
  - 8.7.1 Internet Banking
  - 8.7.2 National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS)
- 8.8 Various Schemes
  - 8.8.1 Pradhan Mantri Jan-Dhan Yojana (PMJDY)
  - 8.8.2 Social Security Schemes
    - 8.8.2.1 Pradhan Mantri Suraksha Bima Yojana (PMSBY)
    - 8.8.2.2 Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)
    - 8.8.2.3 Atal Pension Yojana (APY)
    - 8.8.2.4 Pradhan Mantri Mudra Yojana (PMMY)
  - 8.8.3 National Pension Scheme
  - 8.8.4 Public Provident Fund (PPF) Scheme
- 8.9 Bank on your mobile
  - 8.9.1 Mobile Banking
  - 8.9.2 Mobile Wallets
- 8.10 Insurance
  - 8.10.1 Necessity of Insurance
  - 8.10.2 Life Insurance and Non-life Insurance

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Thiruvananthapuram  
Dated. 25.09.2021

Sd/-  
Director



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

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Thiruvananthapuram, Kerala.

**Short-term Course on  
GOODS AND SERVICE TAX & CUSTOMS DUTY- LAW AND PRACTICE**

[Scheme : 2021]

Course Code : ST2127

1. Aim: To gain expert knowledge of the principles and law relating to Goods and Service Tax and Customs Act. Imparting skill in applying and analyzing the provisions of Goods and Service Tax Act and Customs Act in handling practical situations.
2. Duration of the course : 75 Hrs. (within 3 months period)
3. Eligibility for admission : Plus Two or equivalent
4. Sanctioned Intake : 40 students/batch
5. Course Fee : Rs. 6,000/-+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 center.

Course Code : ST2127



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**Short-term Course on  
GOODS AND SERVICE TAX & CUSTOMS DUTY- LAW AND PRACTICE**

[Scheme : 2021]

**Duration: 75 hours**

**Module 1** (8 Hrs)

**Introduction:** Meaning and Definition of Indirect Taxes-Nature-Scope-Constitutional provisions-Advantages-Disadvantages-Difference between Direct and Indirect Taxes- Types- Milestones in the history of Indirect Taxation in India.

**Module 2** (17 Hrs)

**Basic Provisions of GST:** Introduction-Meaning-Features-Historical backdrop of GST-Major Indirect Taxes merged in to Goods and Service Tax-Benefits of GST-Economy, Industry and trade, tax payers-Types of GST-CGST-IGST-SGST- UTGST Schedules-Rate of GST- Kerala GST Provisions.

**Module 3** (20 Hrs)

**Main Provisions of GST** – Main Provisions: Provisions-Compensation(GST)Law-Definitions of important terms-Levy of Tax-Collection-relating to Place, Time and Value of Supply- Different meaning of supply- Composite Supply-Mixed supply- Scope of Supply- Taxable Supply- E-Commerce-Supply Chain –GST Exemption limit- Tax Invoice-Credit and Debit Notes-Valuation Rules-Computation Tax-Input tax Credit(ITC)-Registration-procedures- Deemed Registration-Cancellation of Registration- Accounts and Records- Period of Retention of Records- Presumption as to Documents>Returns- Annual-Final-Payment of Tax-Information Technology in GST-Audit- Special Audit-Assessment-Refund-Consumer welfare Fund-GST Practitioners-TDS/TCS.

**Module 4****(13 Hrs)**

**Administration of GST:-** GST- Council-Authorities-Inspection-search seizure-Arrest-Demand-Recovery—Liability to pay tax in certain cases- -Advance Ruling- Authority and Appellate Authority-GSTN-Information infrastructure for GST.

**Module 5****(17 Hrs)**

**Appeals and Revisions under GST.** Appeals-Appeal to High Court-Appeal to Supreme Court-Revisions-Offences- Compounding of Offences-Penalty-Transitional provisions-IGST Provisions- Inter-state Supply- Intra-state supply- Zero rated Supply- Imported Supply- Transfer of ITC-Compensation Rules- Base year Revenue-Projected Revenue-Miscellaneous provisions-Interest-Job Work Procedure-Deemed Export.

**References:**

1. Hand Book of GST in India Concepts and Procedures( 2017Edition) -Rakesh Garg &Sandeep Garg - Bloomsbury India Publications
2. GST in India-Rakesh Garg &Sandeep Garg, Bloomsbury India Publications
3. All about GST-V.S Datey-Taxman Publications.
4. GST Law, Concept & Impact Analysis-Dr. SanjivAgarwal
5. GST Law & Analysis with Conceptual Procedure-Bimal Jain & Isha Bensal-Young Global
6. An Insight of GST in India-ICWAI, Vol:1&2
7. Indirect Taxes-Dr.H.C Mehrotra & Prof. Agarwal, Sahitya Bhavan Publishers, Agra.
8. Indirect Taxes-V.S Datey, Taxman Publications New Delhi.
9. Indirect Taxes –Dr.V.Balachandran, Sultan Chand and Sons, New Delhi.
10. GST Bare Acts, Rules, Notifications &Circulars.

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Sd/-  
DIRECTOR





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Thiruvananthapuram, Kerala.

## **CERTIFICATE COURSE IN COMPUTER HARDWARE MAINTENANCE AND NETWORKING**

[Scheme 2020]

Course Code : ST2002

- 1. Aim:** The objective of this course is to aware the students about computer hardware maintenance and basics of computer networking.
- 2. Duration of the course :** 30 Hrs. (Within 2 months period)
- 3. Eligibility for admission :** Std X or above
- 4. Intake :** 40 Students/batch
- 5. Course Fee :** Rs.2500 /- + 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  
Date: 23.03.2020

[Course Code :ST2002 ]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

## **CERTIFICATE COURSE IN COMPUTER HARDWARE MAINTENANCE AND NETWORKING**

[Scheme 2020] (Duration : 30 hrs.)

### **Module - 1 : Basic Electricity**

3 Hrs.

- 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**

5 Hrs.

- 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**

8 Hrs.

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

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Assembling of Desktop Computer

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

#### **Module - 4 : Operating Systems**

6 Hrs.

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**

8 Hrs.

- 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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Sd/-

Director



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

(Established by Govt. of Kerala)

Thiruvananthapuram, Kerala.

**Short-term Course on  
Basics of Electronics**

[Scheme 2020]

Course Code : ST2003

1. Aim: To provide awareness and give sufficient hands on training in the basics of electronics and applications.
2. Duration of the course : 36 hours
3. Eligibility for admission : STD 8<sup>th</sup> to 12<sup>th</sup>
4. Intake : 50 students.
5. Course Fee : 2,000 + 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

Date: 17.02.2020

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[Course Code :ST2003]



INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

## Short-term Course on Basics of Electronics

[Scheme 2020] (Duration : 36 hrs.)

Module – 1 :	9 Hrs.
Introduction to Electronics, Passive Components , Active Components.	
Module – 2 :	9 Hrs.
Introduction to Analog circuits and Digital Electronics.	
Module – 3 :	9 Hrs.
Familiarization of basic electronic instruments and tools	
Introduction to Communication Engineering.	
Module – 4 :	3 Hrs.
Lab Session for familiarization of active and passive components.	
Module – 5 :	3 Hrs.
Lab Session for familiarization of digital circuits	
Module – 6 :	3 Hrs.
Hands on session for soldering practice	

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Thiruvananthapuram  
Date:17.02.2020

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DIRECTOR



## **INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

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Thiruvananthapuram, Kerala.

# **Short-term Course on PROGRAMMING MASTERY IN C, C++ AND PYTHON**

[Scheme 2020]

Course Code : ST2004

1. Aim: To provide necessary training in acquiring programming skills in  
C, C++ AND PYTHON programming.
2. Duration of the course : 80 Hrs
3. Eligibility for admission: Ongoing and Passed out students of B.Tech(all branches), B.Sc Computer Science, M.Sc Computer Science.
4. Intake : 80 students.
5. Course Fee : Rs. 4000/- + GST applicable.
1. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test.

Thiruvananthapuram  
Director  
Date: 17.02.2020

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[Course Code :ST2004]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**Short-term Course on PROGRAMMING MASTERY IN C, C++  
AND PYTHON**

[Scheme 2020] (Duration : 80 hrs.)

**Module - 1 :**

20 Hrs.

Introduction to programming languages : Evolution of programming languages Structured programming ,The compilation process ,Object code, source code, Fundamentals of algorithms, flow charts . C Language Fundamentals , Character set, Identifiers, Keywords , Data Types, Constants and Variables, Statements, Expressions, Operators, Precedence of operators, Input-output Assignments , Control structures, Decision making, and Branching Decision making & looping, Hands-on training in C programming.

**Module - 2 :**

20 Hrs.

C Functions ,User-defined and standard functions, Formal and Actual arguments , Functions category Function prototypes, parameter passing, Call-by-value, Call-by-reference , Recursion . Arrays and Strings : One dimensional Array, Multidimensional Array declaration and their applications String Manipulation .Pointers : Pointer variable and its importance Pointer Arithmetic, passing parameters by reference, Pointer to pointer, linked list, Pointers to functions, dynamic memory allocation, Hands-on training in C programming.

**Module - 3**

20 Hrs.

Structures :Declaration of structures , Pointer to structures File Handling :Console input-output functions , Disk input-output functions. Data files :Additional Features in C , Bitwise operators , Enumerated and union data types, type-casting , Macros, the C preprocessor, More about library functions .PYTHON SCRIPTING: Introduction to Python Short history, Features of Python , Python Interpreter, How to Run Python, Basic Syntax Input, Output Functions , Comments .Variable and Data Types - Numbers - Strings - Lists - Tuple - Set - Dictionary Operators , Arithmetic Operations. Conditional Statements : if Statement ,if...else Statement ,If...else if...else Statement ,Nested if statement. Looping : For

loop ,For loop with else, While Loop , ,While Loop with else statement, Nested loops: Control Statements, Comprehensions ,Functions, File Handling, *Regular expressions, Hands-on training in Python programming.*

**Module - 4**

20 Hrs.

Introduction to C++ ,Basic differences between C and C++, Introduction to STL ,Pairs, Vectors Hash map , Lists , Stacks , Queues , Searching and sorting in STL, Hands-on training in C++ programming.

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

**Short-term Course on Cyber Security**

*[Scheme 2020]*

Course Code : ST2005

1. Aim: “Cyber Security”
2. Duration of the course : 50 Hrs
3. Eligibility for admission : Ongoing and Passed out students of B.Tech(all branches), B.Sc Computer Science, M.Sc Computer Science
4. Intake : 40
5. Course Fee : Rs. 4000/- +GST Applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test.

Thiruvananthapuram  
Dated:17.02.2020

Sd/-  
Director

[Course Code :ST2005 ]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**Short-term Course on Cyber Security**

[Scheme 2020] (Duration : 50 hrs.)

**Module - 1 :**

20 Hrs.

Basics of Information Security, Secret Sharing Schemes ,  
Overview of cyber crimes and laws, Cyber Attacks and Threats,  
Cyber Forensic , Network Forensic ,Prelude to Ethical hacking,  
Basic Network concepts.

**Module - 2 :**

10 Hrs.

Device Forensic, Mobile network security, Foot Printing and  
Reconnaissance, Scanning, Enumeration system, Security/OS  
Security, Network Security.

**Module - 3**

10 Hrs.

Cyber Crime Investigations And Digital Forensics, Web  
Security(Application and Servers),Social Engineering, Session  
Hijacking, Wireless/Mobile security.

**Module - 4**

10 Hrs.

Monitoring Security, Asset and vulnerability management,  
Incident handling, Cryptography, Security for latest  
technologies

**Lab:**

2 Hrs.

Ethical hacking Practical Session

# Interactive Programming with Python

\*\*\*\*\*

Sd/-

Director



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

**Short term Course on Microcontrollers and  
Interfacing**

[Scheme 2020]

Course Code : ST2006

1. Aim: The main objective of the course is to introduce student to assembly language and C language programming of microcontrollers and interfacing.
2. Duration of the course : 5 days
3. Eligibility for admission : Diploma/B.Sc Degree holders or Final year Diploma/BSc Degree students/ First year Engineering Students
4. Intake : 40
5. Course Fee : Rs. 1500/- +GST Applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test.

Sd/-

Thiruvananthapuram  
DIRECTOR  
Date: 17.02.2020

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[Course Code :ST2006 ]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

## **Short term Course on Microcontrollers and Interfacing**

*[Scheme 2020] (Duration : 5 days.)*

<b>Day</b>	<b>Fore Noon Sessions (9:30-12:30)</b>	<b>After Noon Sessions (1:30-4:30)</b>
Day 1	Introduction to microcontrollers	Hands on session on Microcontroller kit
Day 2	Assembly language programming	Lab session on Assembly language program on kit
Day 3	C language programming	Assembly and C language programming in Simulator
Day 4	Concept of Interfacing of Microcontroller	Hands on session on interfacing using hardware / simulation
Day 5	Interfacing	Hands on session on interfacing using hardware / simulation

\*\*\*\*\*

Sd/-

Director



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

**Short-term Course on  
Biomedical Instrumentation**

[Scheme 2020]

Course Code : ST2007

1. Aim: The main objective of the course is to introduce student to basic biomedical engineering technology. This course is to familiarize the students with the analysis, design and brief study of different medical instruments and their use in physiological measurements. Interactive demonstrative sessions and hospital visits give an impetus to learning process in the field of Biomedical Engineering.

2. Duration of the course : 5 days

3. Eligibility for admission : Diploma/B.Sc Degree holders or  
Final year students Diploma/BSc Degree

4. Intake : 40

5. Course Fee : Rs. 1500/- +GST Applicable.

6. Eligibility for Certificate :

i) Student shall have minimum 75% attendance during the course.

ii) Student shall pass the evaluation test.

Sd/-

Thiruvananthapuram  
DIRECTOR  
Date:17.02.2020

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[Course Code :ST2007]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**Short-term Course on  
Biomedical Instrumentation**

[Scheme 2020] (Duration : 5 days.)

<b>Day</b>	<b>Fore Noon Sessions (9:30-12:30)</b>	<b>After Noon Sessions (1:30-4:30)</b>
Day 1	Theory Sessions-Introduction to Instrumentation special emphasis on Biomedical Instrumentation	Lab sessions -Basic biomedical circuits I
Day 2	Theory Sessions-Design of Basic Electronic Circuits used in medical instruments	Lab sessions -Basic biomedical circuits II
Day 3	Theory Sessions- Biomedical Equipments	Lab Sessions-Advanced Biomedical Equipment Familiarization
Day 4	Theory Sessions-Basics of Biomedical Signal and Image processing , special emphasis on CT,MRI,PET and SPECT	Biomedical Signal Processing Lab
Day 5	Theory Sessions-Recent trends in Biomedical Engineering Career opportunities in the field of Biomedical Engineering	Hospital Visit

\*\*\*\*\*

Sd/-

Director



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

**Value Added Course on IoT**

[Scheme 2020]

Course Code : ST2008

1. Aim: To integrate machine learning basics in perspective of IoT
2. Duration of the course : 2 months(200 hrs)
3. Eligibility for admission : B.Tech/ B.Sc/ Diploma/AMIE
4. Intake : 50
5. Course Fee : Rs. 12000/- +GST Applicable.
6. Eligibility for Certificate :
  - i) Student shall have minimum 75% attendance during the course.
  - ii) Student shall pass the evaluation test.

Sd/-

Thiruvananthapuram  
DIRECTOR  
Dated: 17.02.2020

[Course Code :ST2008 ]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

## **Value Added Course on IoT**

[Scheme 2020] (Duration : 200 hrs.)

### **Module - 1 :**

40 Hrs.

Getting Started with Python, Variables, Functions and control Structure, Calling Libraries and functions in python, Inheritance & Object Oriented Programming, Importing or Exporting Data to external file, Using numpy & matplotlib library for data handling in python, Pandas for data handling in python, Using serial communication in python, Python-Arduino Interaction.

### **Module - 2 :**

40 Hrs.

Basics of Internet and Internet Protocols, Introduction to Internet of Things, MQTT, HTTP, Internet Connectivity on Arduino, IOT with Android and Arduino, Cloud Computing, IOT Notification System.

### **Module - 3 :**

40 Hrs.

Meet the Raspberry Pi and Configure, Raspbian, Getting Around Linux on Pi, Programming Input and Output with Python, Playing Music with Pi, Image Processing, Working with Web Cam, Sensors and PWM, Controlling Pi over Bluetooth, Send an Email from Pi.

### **Module - 4 :**

40 Hrs.

Introduction to MQTT & Communication protocol for IoT, Understanding MQTT, Difference between HTTP & MQTT, Understanding MQTT Broker, Understanding Publish & Subscribe Methods, Using MQTT Client with Android, Using MQTT Publish & Subscribe methods in Node-red, Controlling Arduino via MQTT using nodered, Streaming Live sensors data on Android and on MQTT based cloud platform using nodered.

### **Module - 5 :**

40 Hrs.

Android Controlled Device Automation with Arduino, Using Voice Recognition Technique, Sending voice to text from Android app via Bluetooth to Arduino, Analyzing string data format, Voice Controlled Home Automation System, Getting Started with ESP8266-01 WiFi Module, Configuration, Pin Layout and Applications, Testing AT Commands with ESP8266, Connecting to a network, Using Arduino as a data server to a network, Using Arduino as a data server.

\*\*\*\*\*

Sd/-

Director



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

**Certificate course in Basic Computer Awareness and  
Online Services**

[Scheme 2020]

Course Code : ST2009

1. Aim : The course is aimed to selected Kudumbasree members of each ward of Gramapanchayath / Municipality. The main objective of the course is to familiarize the members about the basic operation of computer, internet, basics of DTP, Printing of documents and various online services.
2. Duration of the Course : 10 days (50 hours)
3. Eligibility for admission : 8th standard.
4. Sanctioned for intake : 30Nos/ Batch
5. Course Fees : Rs.2000/- +GST applicable.
6. Eligibility for certificate :
  - i . Students shall have minimum 75% attendance during the course period
  - ii. Students shall pass the evaluation test conducted by the training center

Date:

Director

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[Course Code :ST2009 ]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**Certificate course in Basic Computer Awareness and Online Services**

[Scheme 2020] (Duration : 50 hrs.)

**Module - 1 :**

2 Hrs.

Introduction of Computer with simple block diagram

**Module - 2 :**

5 Hrs.

Concept of MS word, EXCEL, PDF etc

**Module - 3 :**

10 Hrs.

Concept of Internet, modem and networking

**Module - 4 :** Concept of internet banking, mobile banking,

UPI

15

Hrs.

and various payment applications

**Module - 5 :**

5 Hrs.

Introduction of various online services

**Module - 6 :**

5 Hrs.

Familiarization of Hard ware components and peripheral  
devices of PC

**Module - 7 :**

8 Hrs.

Software installation

\*\*\*\*\*

Director



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

**Short-term Course on**  
**FINANCIAL ACCOUNTING AND GST**  
[Scheme 2020]

Course Code : ST2010

**1. Aim:** To give required training in Financial Accounting and GST . Also to provide necessary hands on training in financial accounting packages, 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** : +2 or equivalent.

NB: A basic knowledge in usage of computer is an added requirement for the course.

**4. Intake** : 40 students/batch

**5. Course Fee** : Rs.9300/- + 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 center.

Date 12.03.2020  
DIRECTOR

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[Course Code :ST2010]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**Short-term Course on  
FINANCIAL ACCOUNTING AND GST**

[Scheme 2020] (Duration : 90 hrs.)

**Module - 1 :**  
15 Hrs.

Financial Accounting: Meaning, Nature and Role, Functions and Limitations  
Accounting Process: Accounting Equation, Rules of Debit and Credit, Book Keeping, Journal- Meaning and format, Ledger Trial Balance: Objectives, Limitations, Methods of Preparation

**Module - 2 :**  
15 Hrs.

Subsidiary Books: Cash Book, Inventory Valuation Methods  
Accounts of Non-Corporate Entities: Trading Account.  
Manufacturing Account. Profit and Loss Account, Balance Sheet.  
Introduction to Cost Accounting and Management Accounting

**Module - 3 :**  
Hrs.

20

GST Overview: Present Indirect Taxation in India, Need & Benefits of GST  
Goods and Service Tax regulations. Registration, GST Invoice Returns and in-depth accounting: Filing GST returns  
Recording of GST transactions.

**Module - 4 :**  
40 Hrs.

Hands-On  
Spread Sheet Application- EXCEL, Calc-Libre Office (Freeware)

Financial Accounting Packages: Tally or Ex, GNU Cash  
(Freeware)  
Online training for GST.

\*\*\*\*\*

Sd/-

Director



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

**Certificate Course on  
Placement Oriented Training**

[Scheme 2020]

Course Code : ST2011

**1. Aim:** This training activity focuses on minimizing the academia and industry requirements and enhancing the personality development to make the students reliable, with a positive attitude and right decision making. Equipping the students with relevant and conceptualized professional skills and guiding them towards a bright future and career all around the world through providing training in technical Skill sets, Aptitude, Communication Skills, Interview Skills. Also act as a link between students, alumni, and the employment community.

**2. Duration of the course** : 150 Hrs. (Within 3 months period)

**3. Eligibility for admission** : Final year students undergo  
BTech(CS/IT/EC/EEE)/BCA/BSc/Diploma  
(CS/EC) /Degree Completed

**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.

*Sd/-*

Thiruvananthapuram  
DIRECTOR

Dated.17.02.2020

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[Course Code :ST2011 ]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**Certificate Course on  
Placement Oriented Training**

[Scheme 2020] (Duration : 150 hrs.)

**Module - 1 : C Programming**

15 Hrs.

- a. Basic structure of C program: Character set, Tokens, Identifiers in C, Variables and Data Types, Constants, Console IO Operations, printf and scanf
- b. Operators and Expressions, Operators precedence and Associativity
- c. Control Flow Statements: Decision making and Branching Statement(If, Switch Statement, Unconditional Branching using got o statement, While Loop, Do While Loop, For Loop, Break and Continue statements.(Simple programs covering control flow)
- d. Arrays, String processing, In built String handling functions, Sample programs covering arrays and strings
- e. Modular programming, writing functions, formal parameters, actual parameters, Pass by Value, Recursion, Arrays as Function Parameters structure, union, Storage Classes, Scope and life time of variables, simple programs using functions
- f. Pointer: declaring pointers, accessing data though pointers, NULL pointer, array access using pointers, pass by reference effect
- g. File Operations: open, close, read, write, append

**Module - 2 : HTML,CSS, Javascript**

25 Hrs.

- a) Introduction to HTML5, HTML tags, Form Submission
- b) Introduction to CSS, CSS Selectors, Overriding Styles, CSS Variables, CSS Flex & Grid
- c) Basic Javascript, Understanding Objects, Understanding Global and Local scope
- d) Introduction to ES6 : const and var, Destructuring, Promise
- e) Object Oriented Javascript, Class function, Understanding Prototype

**Module - 3 : MySQL, PHP Cake PH**

30 Hrs.

**3.1 MySQL**

- a.Introduction to RDMS, DBMS, Introduction to mySQL Query language

- b. DDL : Create, Drop, Alter etc. DML : Select, Insert, Delete etc. DCL, TCL
- c. Concepts of nested query, Concepts of View

### **3.2 PHP**

- a. Introduction to PHP,
- b. DDL : Create, Drop, Alter etc. DML : Select, Insert, Delete etc. DCL, TCL
- c. Concepts of nested query, Concepts of View
- d. Working with PHPMyAdmin

### **3.3 CakePHP**

- a. Introduction to CakePHP
- b. CakePHP Conventions
- c. CakePHP Folder Structure
- d. Controllers, Views
- e. Models, Helpers, Plugins

## **Module - 4 : Java**

30 Hrs.

- a) Introduction to HTML5, HTML tags, Form Submission
- b) Introduction to CSS, CSS Selectors, Overriding Styles, CSS Variables, CSS Flex & Grid
- c) Basic Javascript, Understanding Objects, Understanding Global and Local scope
- d) Introduction to ES6 : const and var, Destructuring, Promise
- e) Object Oriented Javascript, Class function, Understanding Prototype

## **Module - 5 : Python**

20 Hrs.

- a. Introduction : Variable & Basic Concept(Covered in C)
- b. Loop, Conditional Statements and Functions
- c. List, Dictionary and Python Modules
- d. OOPS concepts : Class & Objects, Inheritance
- e. File Operations & Exception handling

## **Module - 6 : Python**

- a. Effective Communication  
12 Hrs
- b. Interview Skill  
10 Hrs
- c. Professional Etiquette  
6 Hrs

d. Profile Development  
2 Hrs

\*\*\*\*\*

Thiruvananthapuram  
Sd/-  
Date: 17-02-2020  
Director



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

**Short-term Course on  
INVERTER AND UPS SERVICING AND  
MAINTENANCE**

[Scheme 2020]

Course Code : ST2012

**1. Aim:** To give required training in basic Inverter & UPS Installation and maintenance methods. Also to provide necessary hands on training in Inverter Types, Inverter 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 :** 180 Hrs. (Within 3 months period)

**3. Eligibility for admission :** ITI/SSLC or equivalent

**4. Intake :** 30 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.

Sd/-  
Thiruvananthapuram  
DIRECTOR

Date: 19.02.2020

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[Course Code :ST2012]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**Short-term Course on  
INVERTER AND UPS SERVICING AND MAINTENANCE**

[Scheme 2020] (Duration : 180 hrs.)

**Module - 1 : Basic Electricity**

30 Hrs.

- 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 inverters
- f. identify fuses, types of switches, checking of fuses, switches, lamps
- 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 - MultiMetre, DSO, Cable Tester etc.

**Module - 2 : Introduction to Basic Electronics**

30 Hrs.

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

**Module - 3 : SMPS , UPS & INVERTER CHARGER CIRCUITS**

30 Hrs.

- a. SMPS Circuits.
- b. SMPS Troubleshooting
- c. SMPS form factor, pin Voltages, Connectors, measuring Voltages
- d. Types Of Inverter Chargers

**Module - 4 : TYPES OF INVERTERS**

40 Hrs.

- a. Study Of Inverter Circuit
- b. Design Of Basic Inverter Models

**Module - 5 : INVERTER BACKUP CALCULATIONS AND INSTALLATION**

50 Hrs.

- a. How To Calculate Load And Backup In Households
- b. Inverter Assembling And Installation

\*\*\*\*\*

Sd/-

Director



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

**Short-term Course on**  
**SOLAR PANEL INSTALLATION AND MAINTENANCE**  
[Scheme 2020]

Course Code : ST2013

**1. Aim:** To give required training in basic Solar Panel Installation and maintenance methods. Also to provide necessary hands on training in Solar panels Types, Solar Inverter 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** : 180 Hrs. (Within 3 months period)

**3. Eligibility for admission** : ITI/SSLC or equivalent

**4. Intake** : 30 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.

Sd/-

Thiruvananthapuram  
DIRECTOR  
Date:19.02.2020

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[Course Code :ST2013]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**Short-term Course on  
SOLAR PANEL INSTALLATION AND MAINTENANCE**

[Scheme 2020] (Duration : 180 hrs.)

**Module - 1 : Basic Electricity**

30 Hrs.

- 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 inverters
- f. identify fuses, types of switches, checking of fuses, switches, lamps
- 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 - MultiMetre, DSO, Cable Tester etc.

**Module - 2 : Introduction to Basic Electronics**

30 Hrs.

- 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.

**Module - 3 : SMPS , UPS , SOLAR CHARGER CIRCUITS**

30 Hrs.

- a. SMPS Circuits.
- b. SMPS Troubleshooting
- c. SMPS form factor, pin Voltages, Connectors, measuring Voltages
- d. Types Of Solar Chargers

**Module - 4 : SOLAR PANEL TYPES AND INSTALLATION METHODS**

40 Hrs.

- a. Study Of Solar Panels
- b. Installation Methods Of Solar Panels

**Module - 5 : INVERTER BACKUP CALCULATIONS AND INSTALLATION**

50

Hrs.

- a. How To Calculate Load And Backup In Households
- b. Solar Inverter Assembling And Installation

\*\*\*\*\*

Sd/-

Director



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

**CERTIFICATE COURSE IN**  
**JAVA WEB APPLICATION DEVELOPMENT**  
[Scheme 2020]

Course Code : ST2014

**1. Aim:** The objective of this subject is to aware the students about JAVA programming and web application development methods

**2. Duration of the course** : 30 Hrs. (Within 2 months period)

**3. Eligibility for admission** : Std X or above

**4. Intake** : 40 Students/batch

**5. Course Fee** : Rs.2500 /-+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.

Sd/-  
Thiruvananthapuram  
DIRECTOR  
Date: 23.03.2020

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[Course Code :ST2014]



**INSTITUTE OF HUMAN RESOURCES DEVELOPMENT**

**CERTIFICATE COURSE IN JAVA WEB APPLICATION  
DEVELOPMENT**

[Scheme 2020] (Duration : 30 hrs.)

**Module - 1 :**

5 Hrs.

Introduction to Website Development: HTML, CSS, JAVASCRIPT Definitions, Create a multipage website using HTML. Control the look of a website using CSS. Format a web page to display complex information. Add graphical elements and maps to a website. Implement web forms to capture user input. Test a website for compliance with standards and to ensure that it works with a range of browsers.

**Module - 2 :**

5 Hrs.

Javascript: Program web applications in JavaScript. Develop and code algorithms. Test and debug JavaScript code. Use JavaScript libraries to implement user interface functionality. Access and display data. Use APIs to access third-party resources.

**Module - 3 :**

6 Hrs.

Introduction to Responsive Designs and Mobile web applications: Understand the landscape and portrait different designs to maximize the user experience. Create media queries on CSS. Use Firebase and jQuery to add UI elements to improve designs.

**Module - 4 :**

5 Hrs.

Java: Introduction to Java. Java Web Servers and Application Servers (Tomcat/Glassfish). Overview, Installation and Configuration. Servlets, JSP

## **Module - 5 :**

5 Hrs.

Java Servlet Technology:

What is Web Application? What Is a Servlet?. Servlet Life Cycle  
Sharing Information, Using Scope Objects, Controlling Concurrent Access,  
Getting Information from Requests, Constructing Responses, Filtering  
Requests and Responses, Programming Filters, Customized Requests and  
Responses, Specifying Filter Mappings, Invoking Other Web Resources,  
Including Other Resources in  
the Response, Transferring Control, Accessing the Web Context,  
Maintaining Client State, Session Management, Session Tracking, Tracking  
Service Requests, Notifying Methods to Shut Down, Creating Polite Long-  
Running Methods

JSP Technology: Java Server Pages Technology

The Life Cycle of a JSP Page, Translation and Compilation,  
Creating Static Content, Response and Page Encoding  
Creating Dynamic Content, Using Objects within JSP Pages  
Expression Language, Deactivating Expression Evaluation,  
Implicit Objects, Literals & Operators ,Reserved Words,  
JavaBeans Components, Reusing Content in JSP Pages,  
Transferring Control, Jsp: param Element,  
Including an Applet, Setting Properties for  
Groups of JSP Pages, JSP scripting elements and directives-  
Declarations, expressions, directives, scriptlets, comments ,actions,  
implicite

JSP objects - Working with variable, scopes - page scope, request scope,  
session scope, application scope- Using java beans, custom tags, Declare  
Default

Content Type, Set Default Buffer Size,

JSTL, Expression Language,

Custom Tags in JSP Pages, Types of Tags: Tags with Attributes,

Tags with Bodies, Tags That Define Variables, Communication between  
Tags,

Tag Library Descriptors,

Declaring Tag Files, Declaring Tag Handlers, Declaring Tag Attributes for,  
Tag Handlers, Declaring Tag Variables for Tag Handlers,

Programming Simple Tag Handlers, Including Tag Handlers in  
Web Applications, Cooperating Tags

## **Module - 6 :**

4 Hrs.

Project Development:

Requirement analysis, Requirement specification,

Requirements review, Minutes of Meeting, Preliminary design,

Preliminary design document, Preliminary design review,

Time Sheet Management, Detailed design, Detailed design document,

Detailed design review, Code, Code review, Comment review,

Unit testing, Implementation, Acceptance testing,  
Training, Maintenance

\*\*\*\*\*

Sd/-

Director