INSTITUTE OF HUMAN RESOURCES DEVELOPMENT
N.H.BYPASS JN, CHACKAI, THIRUVANANTHAPURAM – 24

PROCEEDINGS

IHRD, TVPM – Short term course proposals received from various institutions under IHRD – Approved and submitted by the Academic Committee for IHRD courses – Sanctioned – orders issued.

No.DB1/13021/2019/HRD Dated, Thiruvananthapuram 18th March, 2021

Read: 1. This office proceedings No.DB1/13021/2019/HRD dated 25.02.2020.
2. Minutes of the academic committee meeting held on 05.03.2020 and 08.01.2021.

ORDER

As per this office proceedings read (1) above, Academic Committee had constituted under the chairmanship of Dr. Jacob Thomas, Principal, College of Engineering, Chengannur with faculties from various centres of IHRD for scrutinizing and approving the course proposals. The following courses are recommended by the Academic Committee.

Sl.No.	Name of Course
1	Short-term Course on Software development using PHP, My SQL, & CSS
2	Training programme in Electronic Working Model development
3	Short-term Course on Career Orientation with Integrated Personality Development
4	Short-term course on IT Enabled Training
5	Coaching for Competitive Exams Conducted by PSC/UPSC etc.
6	Short-term Course on UGC NET Coaching (in Commerce)
7	Certificate Course in Computer Network Administration
8	Short-term course on CCTV Installation
9	Entrance Coaching To Higher Secondary Students
10	GATE Preparatory Course
11	Short-term course on Python Programming
12	Short-term course on Android Development
13	Short-term course on Arduino and Raspberry PI Programming
14	Short-term course on Laptop and Mobile Servicing
15	Short-term course on Tally ERP 9
16	Short-term course on Malayalam Computing
17	Short-term Course on LET Coaching
18	Short-term Course on Computer Hardware
19	Certificate course in Electrical Wireman
20	Preparatory classes for Electrical Supervisor Licence
21	Short term Course on Computer Programming Fundamentals
22	Solar Panel Installation Technology

23	Short-term Course on IoT & Robotics	
24	Short-term Course on DTH SET-TOP BOX Installation and Service Technician	
25	Certificate course in Computing for Medical Science	
26	Post Graduate Diploma in Cyber Forensics & Security (PGDCF)	1 Semester

In the above circumstances, it has been decided to approve the above mentioned 26 courses and guidelines as recommended by the academic committee constituted for scrutinize the course proposals of new IHRD courses with immediate effect.

The course syllabus, list of courses and guidelines for the new courses etc. is published in IHRD website (members area) for further action.

Sd/-
Dr. P. Suresh Kumar
DIRECTOR

To

1. All head of institutions under IHRD (published in IHRD website – members area)
2. Additional Director for information
3. Dr.Jacob Thomas, Chairman, Academic Committee for IHRD courses
4. All section heads, IHRD
5. S.F/O.C

Forwarded / by Order

Senior Superintendent

The guidelines of the academic committee of IHRD courses

1. Courses which doesn't require lab/practical classes can be conducted online mode in this pandemic season. For other courses, theory classes can be conducted online and lab/practical classes can be conducted at centers as per guidelines of Govt. and health dept. time to time. Ensure the quality of both online and offline classes by HOI
2. Course fee can be minimal to attract maximum participants. Maximum intake strength of each batch of students should be 40 and minimum 15. Expenditure for conducting any program should not exceed 50% of the total income.
3. For coaching classes like Engg/ NEET Entrance/PSC/LET/GATE/NET, HOI are permitted to conduct these subject specific programs, in online/offline modes. HOI are entrusted to offer custom made programs depending on the demand and should ensure the quality of such program. Broadly, Max. duration & fee can be as follows:

   Engg/ NEET Entrance 480 Hrs within 6 months: Rs5,000+GST @ subject

   PSC: 60 Hrs within 3 months, Rs 3000+GST

   LET: 60 Hrs within 3 months, Rs 3000+GST

   GATE: 400 Hrs within 5months: Rs20,000+GST

   NET: 180 Hrs within 3months: Paper -I:Rs 5000+GST, Paper –II :Rs 15000+GST.

4. The approved courses as per annexure can be conducted in any of the institutions under IHRD provided the facilities are available for the conduct of the required course in the institution. It shall be intimated to IHRD with number of registered candidates within three days after the commencement of courses.

5. Registration fee/admission fee of Rs100/- can be collected from students enrolling in short term courses having duration more than 3months/300 Hrs duration.

6. Head of the institutions are entrusted to conduct the evaluation/examination process.

7. Evaluation- both continuous and terminal can be conducted and grades can be awarded in 10 point scales as in KTU

8. The course summary and mark lists/Grades/ evaluation process report with due recommendation shall be forwarded to IHRD within a week after the completion of course for issuing the course certificate counter signed by the Director

Sd/-
DIRECTOR

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

Certificate course in Computing for Medical Science

[Scheme 2021]

Course Code : ST2125

Duration : 35 Hrs. within 2 months

Course Fee: Rs**. 6000/- + GST +CESS**

1. AIM: Creating awareness about latest technologies in computing for doctors.

2. Duration of the course : 35 Hrs within 2 months

3. Eligibility for admission : Doctors/MBBS students

4. Intake : 30 students/ batch

5. Course fee : RS. 6000/-+ 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
05.03.2021

Sd/-
Director

[Course Code : ST2125]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Certificate course in Computing for Medical Science

[Scheme 2021]

Duration : 35 hrs within 2 months

Module 1: Computer Fundamentals

Introduction to Computer - Familiarity with the basic components & system specification

Concept of Hardware and Software - Block diagram - functional units - Input, Output, Memory, CPU. IO-Devices - Familiarization of IO-Devices - Keyboard, mouse (optical, wireless), scanners , Computer specification (Hardware)- Sample system specification for home, office and special purpose computers.

Module 2: Operating System principles

Introduction to GUI Based Operating System

Introduction to **windows platform** - mouse operations - concept of desktop, taskbar, Icons, utilities - Paint, Word pad – Icons - changing size, moving, enlarging, copying - files and folders - creation, copying, deleting - windows explorer – control panel.

Introduction to **Linux** - Concept of open & free software - Familiarisation of Linux Desktop - File Management in Linux

Introduction to the **Mac OS X** user interface ,Mac OS X basics, Customizing system-wide preferences and user preferences, Using the Mac OS X help system, Common applications and their integration ,Managing multiple applications and multiple windows within an application, Dashboard and Automator, File sharing basics

Module 3: Word Processing(MS Word, Writer, Pages for Mac)

Drafting/Noting using computer, Format documents

Word processing packages - features - WORD Menu – Tool bar- windows parts, creating a document, saving, editing – formatting text – selection, Copying, Moving, Deleting, Inserting, Undo, Redo , News paper column – Formatting paragraph – Margins and gutters, applying styles, Find & Replace, headers, footers, line spacing, page layout, page numbering, inserting section break – spell check, Tables – creation, Editing, Formatting, Table insertion, Document with table, Printing of word document.

Module 4: Spreadsheet Packages (MS Excel , Calc, Numbers for Mac)

Create, save and work on Spreadsheet Software

Electronic spread sheet, features, Menus, Cells, Rows, Columns, Saving worksheet, Workbook – selecting cells, entering, copying formula, Autosum, functions, Rearranging worksheet – moving,

copying, deleting, filtering data , sorting – Formatting Cells & cell content, find & replace, spell check, insert / delete row, column, freezing , splitting, Hide / Unhide, cell protection – drawing graph, Title, legends, saving, if command, moving and copying between sheets- formula, functions (sum, average, if, count, max, min, sin, sumif, hyperlink) and macros entering formula – cell reference — working with range names . Transferring spreadsheet information to a word document., Printing worksheet-setting Print area

Module 5: Presentation Packages (Power Point, Impress, Keynote for Mac)

Create presentations - Application of presentation -Demonstration of Presentation Software like Power Point, Impress, Keynote for Mac

Starting presentation software, menu bar, title bar, status bar, tool bar – creating new presentation by using blank presentation , by using template- viewing presentation – slide- insertion, deletion – enter, edit and create new text object – change and correct text, spell check- enhance a presentation – color, style, color schemes, add header and footer, add clipart picture , graphic objects, other objects, align objects – set transition , animate objects on a slide , add sound and movies, adding links to a slide. Printing slides

Module 6: Networking Concept, WEB Utilities& Social Media

Introduction to Internet, WWW and Web browsers, searching content etc

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 software, Search Engines; Understanding URL; Domain name; IP Address, Email - email id creation, compose, attach, send, inbox, spam, trash, CC, BCC, addressbook, reply& forward, searching

Familiarization of Social media platforms like Twitter, Face book, Instagram, Blog etc

Communication and collaboration tools like Skype, Zoom app, Google meet

Cloud Office Suits- Familiarization of G suite, iWork, Microsoft Office etc.

Module 7: Tele-Medicine

Tele-medical Technology- Evolution of telemedicine

Introduction to Telemedicine-Historical perspective and Evolution of telemedicine, Tele health, Tele care, Ethical and legal aspects of Telemedicine ; Tele-medical Technology -Principles of Multimedia, Video and audio conferencing, Tele-medical Standards, Tele-medical Applications, Familiarisation of Softwares / Hardware used for Telemedicine, Medical Records- Creating medical record using open source software's

Hands-on training: *Experiential learning through Lab practice on Office automation Packages, Web utilities and Telemedicine*.

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Thiruvananthapuram
05.03.2021

Sd/-
Director

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

Short-term Course on

Software development using PHP, My SQL, & CSS

[Scheme 2021]

Course Code : ST2101

1. AIM: To develop software and database based systems and projects
2. Duration of the course : 3 months (200 hrs)
3. Eligibility for admission : B.Tech/ B.Sc/ Diploma/AMIE / BCA
4. Intake : 40 students/ batch
5. Course fee : Rs.8000 /- + 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. 15.03.2021

Sd/-
Director

[Course Code : ST2101*]*

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

Software development using PHP, My SQL, & CSS

[Scheme 2021]

Duration:200 hrs within 3 months)

Module 1 (40 Hrs)

HTML: Basics of HTML, Static and dynamic pages, Basic styles(marquees), Tables, forms ,fields, Capturing Form Data, Dealing with Multi-value filed, Generating File uploaded form, Redirecting a form after submission.

Module 2: (40 Hrs)

PHP : Basics of PHP, dynamic pages using PHP, sessions, get, post, request ,Evaluation of Php, Basic Syntax, Defining variable and constant, Php Data type, Operator and Expression, html and Php

Module 3: (40 Hrs)

SQL: Database theoretical back ground, database and tables, Connection with MySql Database, Performing basic database operation (DML) (Insert, Delete, Update, Select), Setting query parameter, Executing query, SQL and PHP

Module 4: (40 Hrs)

CSS: how to provides styles, html and CSS, Editing templates, Introduction to CSS, Three ways to use CSS, CSS Properties, Designing website, Working with Templates

Introduction to Java script, Three ways to use Java script, Working with events, Client-side Validation

Module 5: (40 Hrs)

Mini Projects: A Software system using PHP and My sql

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Dated. 15.03.2021

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Training programme in Electronic Working Model development

[Scheme 2021]

Course Code : ST2102

1. AIM: To develop school level practical skills in electronics perspective

2. Duration of the course : 50 Hrs (within 1 month)
   (Vacation time only)

3. Eligibility for admission : 5th -12th Standard

4. Intake : 40 students/ batch

5. Course fee : RS. 2000/-+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. 15.03.2021

Sd/-
Director

[Course Code : ST2102]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Training programme in Electronic Working Model development

[Scheme 2021]

Duration: 50 hrs with in 1 month

Module 1 (5 Hrs)

Introduction to Electronics, Passive components, Active components, Identification of components, Color coding, Alphanumeric coding, Functions of basic components

Module 2: (9 Hrs)

Introduction to analog electronics and digital electronics: Familiarization of basic analog circuits, resistive circuits, capacitive circuits, series and parallel connection, rectifiers, filters, power supplies, diode circuits, LED circuits, basic gates, truth table, simple logic circuits.

Module 3: (9 Hrs)

Familiarization of basic electronic instruments and tools: CRO, Function generator, Multi meter, Soldering iron, desoldering pump, nipper, cutter etc. Measurements using CRO, measurements using Multi meter, Component testing using multi meter, Waveform generation using Function Generator. Theory and practice of soldering. Breadboard wiring.

Module 4: (9 Hrs)

Lab session: Hands on practice for Identification of components, Color coding, Alphanumeric coding, CRO, Function generator, Multi meter, Measurements using CRO, measurements using Multi meter, Component testing using multi meter, Waveform generation using Function Generator, Waveform observation using CRO

Module 5: (9 Hrs)

Lab session: Hands on practice for Digital electronics: Familiarization of basic gates and digital IC's, Familiarization of IC design Kit, Testing and verifying of truth table of digital IC's. Wiring of simple digital circuits and verifying output.

Module 6: (9 Hrs)

Lab session: Hands on practice for soldering practice: Familiarization of soldering iron, soldering station, desoldering pump, soldering on general purpose PCB, desoldering, soldering of small electronic hobby kits and observing the output. Development of electronic working models of hobby circuits and science projects.

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Dated. 15.03.2021

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Director

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT
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Thiruvananthapuram, Kerala.

Short-term Course on
Career Orientation with Integrated Personality Development

[Scheme 2021]

Course Code : ST2103

1. **Aim :** To acquaint the student with the basic skills of communication. To create better output and promote divergent thinking ability in students. To acquire skills in quantitative aptitude and ICT. To develop skills in facing life problem situations and stress management. To get awareness in various career options and assess their competencies.

2. Duration of the Course **: 40 Hrs.** (within 2 months of period)

3. Eligibility for admission **: Plus Two or equivalent**

4. Sanctioned for intake **: 40 students per batch**

5. Course Fees **: Rs 3000/- +GST applicable**

6. Eligibility for Certificate :

i) The student shall have a minimum 75% attendance during the course.

ii) The student should pass the evaluation test conducted during the training.

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Dated. 15.03.2021

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Director

[Course Code :ST 2103]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term Course on
Career Orientation with Integrated Personality Development

[Scheme 2021] (Duration: 40 hrs.)

Module I: Numerical and ICT Skills (10 Hrs)

Quantitative Aptitude- Average, sum, mean, median, mode, clock, calendar, mixture, ratio and proportions, percentage, profit and loss, simple and compound interest. ICT Skills- Familiarising Office automation-Write, Calc, Impress; Internet and digital communication skills- email, resume, digital media, conversions and transfer- Online services, e- cash transactions.

Module II: Communication Skills (10 Hrs)

Art of Communication-Phonetics-Grammar for writing; Communication skills-Vocabulary building-Situational conversation -Speaking Sessions; Body language -Speaking with confidence -Debating skills-Writing skills.

Module III: Life Skills (5 Hrs)

General ethics- Attitude- EQ- etiquette- netiquette- decision making abilities, emotional, social intelligence- financial management – yoga.

Module IV: Problem Solving Skills (5 Hrs)

Active listening- analysis-decision making-team building-innovative and creative thinking- adaptability and flexibility-initiative.

Module V: Stress Management (5 Hrs)

Stress management- causes and effects- time management- methods to relieve stress- the importance of starting early.

Module VI: Career Orientation (5 Hrs)

Career opportunities- courses and training opportunities-skills required; start-ups- Challenges and opportunities – Registration formalities- Case study of successful entrepreneurs.

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Dated. 15.03.2021

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Thiruvananthapuram, Kerala.

Short-term course on

IT Enabled Training

[Scheme 2021]

Course Code : ST 2104

1. AIM: To make students aware of the role of IT in Society

2. Duration of the course : 20 Hrs

3. Eligibility for admission : High School students

4. Intake : 40 students

5. Course fee : RS. 1500/- +GST applicable

Thiruvananthapuram
Dated. 15.03.2021

Sd/-
Director

[Course Code : ST 2104]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

IT Enabled Training

[Scheme 2021]

Module 1: *(8 hours)*

Computer Fundamentals : Block diagram of a Computer – Concept of hardware and software – Functional Units – Input, output, memory, CPU – Input/Output devices – keyboard, mouse, scanner, monitor, printer, Projector – Storage Devices – memory (RAM/ROM), Hard disk, optical disk – Operating system – definitions, functions, - CUI, GUI – POST – Windows operating system – files and folders.

Module 2: *(7 hours)*

Computer Network Basics : Network topology, protocol, IP address, Internet Introduction – WWW, Browsers-URL-upload and download-search engines-email account creation and accessing

Module 3: *(5 hours)*

Cloud storage : Google drive-sheets, documents, online tax calculation, familiarization of other online forms – online purchasing.

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Dated. 15.03.2021

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Coaching for Competitive Exams
Conducted by PSC/UPSC etc.
[Scheme 2021]

Course Code : ST 2105.

1. Aim : To provide necessary training to appear for PSC exams

2. Duration of the Course **: 6 months.** (60 hours)

3. Eligibility for admission **: Plus Two (Pass)**

4. Sanctioned for intake **: 40 students**

5. Course Fees **: Rs 3000/- +GST applicable**

Thiruvananthapuram
Dated. 15.03.2021

Sd/-
Director

[Course Code :ST 2105]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Coaching for Competitive Exams

[Scheme 2021] (Duration : 60 hrs.)

Module I: (15 Hrs)

General English Grammar .

Module II: (15 Hrs)

General Maths, Mental Ability

Module III: (10 Hrs)

Basic IT, Cyber Law

Module IV: (10 Hrs)

Kerala, India – Basic Facts, Constitution

Module V: (10 Hrs)

General Science

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Thiruvananthapuram
Dated. 15.03.2021

Sd/-
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INSTITUTE OF HUMAN RESOURCES DEVELOPMENT
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Thiruvananthapuram, Kerala.

Short-term Course on

UGC NET COACHING (IN COMMERCE)

[Scheme 2021]

Course Code : ST2106

1. Aim: To provide necessary techniques and information for qualifying NET / JRF (in commerce).
2. Duration of the course : 180 hours (Within 3 months)
3. Eligibility for admission :Post graduate in commerce, or PG students
4. Intake : 50 students.
5. Course Fee : Paper I :- Rs. 5000/-
   Paper II :-Rs. 15000/-
   + GST

Thiruvananthapuram
Dated. 15.03.2021

Sd/-
Director

(Course Code : ST2106)

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term Course on UGC Net Coaching

Scheme 2021 (Duration :100 hrs.)

Subject : Commerce

Unit 1: Business Environment and International Business
Unit 2: Accounting and Auditing
Unit3:BusinessEconomics
Unit 4: Business Finance
Unit 5: Business Statistics and Research Methods
Unit 6: Business Management and Human Resource Management
Unit 7: Banking and Financial Institutions
Unit 8: Marketing Management
Unit 9: Legal Aspects of Business
Unit 10: Income-tax and Corporate Tax Planning

Unit 1: Business Environment and International Business

- Concepts and elements of business environment: Economic environment- Economic systems, Economic policies(Monetary and fiscal policies); Political environment- Role of government in business; Legal environment- Consumer Protection Act, FEMA; Socio-cultural factors and their influence on business; Corporate Social Responsibility(CSR)
- Scope and importance of international business; Globalization and its drivers; Modes of entry into international business
- Theories of international trade; Government intervention in international trade; Tariff and non-tariff barriers; India's foreign trade policy

- Foreign direct investment (FDI) and Foreign portfolio investment (FPI); Types of FDI, Costs and benefits of FDI to home and host countries; Trends in FDI; India's FDIpolicy
- Balance of payments (BOP): Importance and components of BOP
- Regional Economic Integration: Levels of Regional Economic Integration; Trade creation and diversion effects; Regional Trade Agreements: European Union (EU), ASEAN, SAARC,NAFTA
- International Economic institutions: IMF, World Bank,UNCTAD
- World Trade Organisation (WTO): Functions and objectives of WTO; Agriculture Agreement; GATS; TRIPS;TRIMS

(10hrs)

Unit 2: Accounting and Auditing

- Basic accounting principles; concepts and postulates
- Partnership Accounts: Admission, Retirement, Death, Dissolution and Insolvency of partnership firms
- Corporate Accounting: Issue, forfeiture and reissue of shares; Liquidation of companies; Acquisition, merger, amalgamation and reconstruction of companies
- Holding company accounts
- Cost and Management Accounting: Marginal costing and Break-even analysis; Standard costing; Budgetary control; Process costing; Activity Based Costing (ABC); Costing for decision-making; Life cycle costing, Target costing, Kaizen costing and JIT
- Financial Statements Analysis: Ratio analysis; Funds flow Analysis; Cash flow analysis
- Human Resources Accounting; Inflation Accounting; Environmental Accounting
- Indian Accounting Standards and IFRS
- Auditing: Independent financial audit; Vouching; Verification ad valuation of assets and liabilities; Audit of financial statements and audit report; Cost audit
- Recent Trends in Auditing: Management audit; Energy audit; Environment audit; Systems audit; Safety audit

(10hrs)

Unit 3: Business Economics

- Meaning and scope of business economics
- Objectives of business firms
- Demand analysis: Law of demand; Elasticity of demand and its measurement; Relationship between AR and MR
- Consumer behavior: Utility analysis; Indifference curve analysis
- Law of Variable Proportions: Law of Returns to Scale
- Theory of cost: Short-run and long-run cost curves
- Price determination under different market forms: Perfect competition; Monopolistic competition; Oligopoly- Price leadership model; Monopoly; Price discrimination
- Pricing strategies: Price skimming; Price penetration; Peak load pricing

(10hrs)

Unit 4: Business Finance

- Scope and sources of finance; Lease financing
- Cost of capital and time value of money
- Capital structure
- Capital budgeting decisions: Conventional and scientific techniques of capital budgeting analysis
- Working capital management; Dividend decision: Theories and policies
- Risk and return analysis; Asset securitization
- International monetary system
- Foreign exchange market; Exchange rate risk and hedging techniques
- International financial markets and instruments: Euro currency; GDRs; ADRs
- International arbitrage; Multinational capital budgeting

(10hrs)

Unit 5: Business Statistics and Research Methods

- Measures of central tendency
- Measures of dispersion
- Measures of skewness
- Correlation and regression of two variables
- Probability: Approaches to probability; Bayes' theorem
- Probability distributions: Binomial, poisson and normal distributions
- Research: Concept and types; Research designs
- Data: Collection and classification of data
- Sampling and estimation: Concepts; Methods of sampling - probability and non-probability methods; Sampling distribution; Central limit theorem; Standard error; Statistical estimation
- Hypothesis testing: z-test; t-test; ANOVA; Chi–square test; Mann-Whitney test (U-test); Kruskal-Wallis test (H-test); Rank correlation test
- Report writing

(10hrs)

Unit 6: Business Management and Human Resource Management

- Principles and functions of management
- Organization structure: Formal and informal organizations; Span of control
- Responsibility and authority: Delegation of authority and decentralization
- Motivation and leadership: Concept and theories
- Corporate governance and business ethics

- Human resource management: Concept, role and functions of HRM; Human resource planning; Recruitment and selection; Training and development; Succession planning
- Compensation management: Job evaluation; Incentives and fringe benefits
- Performance appraisal including 360 degree performance appraisal
- Collective bargaining and workers' participation in management
- Personality: Perception; Attitudes; Emotions; Group dynamics; Power and politics; Conflict and negotiation; Stress management
- Organizational Culture: Organizational development and organizational change

(10hrs)

Unit 7: Banking and Financial Institutions

- Overview of Indian financial system
- Types of banks: Commercial banks; Regional Rural Banks (RRBs); Foreign banks; Cooperative banks
- Reserve Bank of India: Functions; Role and monetary policy management
- Banking sector reforms in India: Basel norms; Risk management; NPA management
- Financial markets: Money market; Capital market; Government securities market
- Financial Institutions: Development Finance Institutions (DFIs); Non-Banking Financial Companies (NBFCs); Mutual Funds; Pension Funds
- Financial Regulators in India
- Financial sector reforms including financial inclusion
- Digitisation of banking and other financial services: Internet banking; mobile banking; Digital payments systems
- Insurance: Types of insurance- Life and Non-life insurance; Risk classification and management; Factors limiting the insurability of risk; Re-insurance; Regulatory framework of insurance- IRDA and its role

(10hrs)

Unit 8: Marketing Management

- Marketing: Concept and approaches; Marketing channels; Marketing mix; Strategic marketing planning; Market segmentation, targeting and positioning
- Product decisions: Concept; Product line; Product mix decisions; Product life cycle; New product development
- Pricing decisions: Factors affecting price determination; Pricing policies and strategies
- Promotion decisions: Role of promotion in marketing; Promotion methods - Advertising; Personal selling; Publicity; Sales promotion tools and techniques; Promotion mix
- Distribution decisions: Channels of distribution; Channel management
- Consumer Behaviour; Consumer buying process; factors influencing consumer buying decisions
- Service marketing
- Trends in marketing: Social marketing; Online marketing; Green marketing; Direct marketing; Rural marketing; CRM
- Logistics management

(10hrs)

Unit 9: Legal Aspects of Business

- Indian Contract Act, 1872: Elements of a valid contract; Capacity of parties; Free consent; Discharge of a contract; Breach of contract and remedies against breach; Quasi contracts;
- Special contracts: Contracts of indemnity and guarantee; contracts of bailment and pledge; Contracts of agency
- Sale of Goods Act, 1930: Sale and agreement to sell; Doctrine of Caveat Emptor; Rights of unpaid seller and rights of buyer
- Negotiable Instruments Act, 1881: Types of negotiable instruments; Negotiation and assignment; Dishonour and discharge of negotiable instruments
- The Companies Act, 2013: Nature and kinds of companies; Company formation; Management, meetings and winding up of a joint stock company
- Limited Liability Partnership: Structure and procedure of formation of LLP in India
- The Competition Act, 2002: Objectives and main provisions
- The Information Technology Act, 2000: Objectives and main provisions; Cyber crimes and penalties
- The RTI Act, 2005: Objectives and main provisions
- Intellectual Property Rights (IPRs) : Patents, trademarks and copyrights; Emerging issues in intellectual property
- Goods and Services Tax (GST): Objectives and main provisions; Benefits of GST; Implementation mechanism; Working of dual GST

(10hrs)

Unit 10: Income-tax and Corporate Tax Planning

- Income-tax: Basic concepts; Residential status and tax incidence; Exempted incomes; Agricultural income; Computation of taxable income under various heads; Deductions from Gross total income; Assessment of Individuals; Clubbing of incomes
- International Taxation: Double taxation and its avoidance mechanism; Transfer pricing
- Corporate Tax Planning: Concepts and significance of corporate tax planning; Tax avoidance versus tax evasion; Techniques of corporate tax planning; Tax considerations in specific business situations: Make or buy decisions; Own or lease an asset; Retain; Renewal or replacement of asset; Shut down or continue operations
- Deduction and collection of tax at source; Advance payment of tax; E-filing of income-tax returns

(10hrs)

Subject : GENERAL PAPER ON TEACHING & RESEARCH APTITUDE

(Duration :80 hrs.)

PAPER-I

The main objective is to assess the teaching and research capabilities of the candidates. The test aims at assessing the teaching and research aptitude as well. Candidates are expected to possess and exhibit cognitive abilities, which include comprehension, analysis, evaluation, understanding the structure of arguments, deductive and inductive reasoning. The candidates are also expected to have a general awareness about teaching and learning processes in higher education system. Further, they should be aware of interaction between people, environment, natural resources and their impact on the quality of life.

The details of syllabi are as follows:

Unit-I Teaching Aptitude

- Teaching: Concept, Objectives, Levels of teaching (Memory, Understanding and Reflective), Characteristics and basic requirements.
- Learner's characteristics: Characteristics of adolescent and adult learners (Academic, Social, Emotional and Cognitive), Individual differences.
- Factors affecting teaching related to: Teacher, Learner, Support material, Instructional facilities, Learning environment and Institution.
- Methods of teaching in Institutions of higher learning: Teacher centred vs. Learner centred methods; Off-line vs. On-line methods (Swayam, Swayamprabha, MOOCs etc.).
- Teaching Support System: Traditional, Modern and ICT based.
- Evaluation Systems: Elements and Types of evaluation, Evaluation in Choice Based Credit System in Higher education, Computer based testing, Innovations in evaluation systems.

(10hrs)

Unit-II Research Aptitude

- Research: Meaning, Types, and Characteristics, Positivism and Post-positivistic approach to research.
- Methods of Research: Experimental, Descriptive, Historical, Qualitative and Quantitative methods.
- Steps of Research.
- Thesis and Article writing: Format and styles of referencing.
- Application of ICT in research.
- Research ethics.

(10hrs)

Unit-III Comprehension

- A passage of text be given. Questions be asked from the passage to be answered.

(5hrs)

Unit-IV Communication

- Communication: Meaning, types and characteristics of communication.
- Effective communication: Verbal and Non-verbal, Inter-Cultural and group communications, Classroom communication.
- Barriers to effective communication.
- Mass-Media and Society.

(5hrs)

Unit-V Mathematical Reasoning and Aptitude

- Types of reasoning.
- Number series, Letter series, Codes and Relationships.
- Mathematical Aptitude (Fraction, Time & Distance, Ratio, Proportion and Percentage, Profit and Loss, Interest and Discounting, Averages etc.).

(5hrs)

Unit-VI Logical Reasoning

- Understanding the structure of arguments: argument forms, structure of categorical propositions, Mood and Figure, Formal and Informal fallacies, Uses of language, Connotations and denotations of terms, Classical square of opposition.
- Evaluating and distinguishing deductive and inductive reasoning.
- Analogies.
- Venn diagram: Simple and multiple use for establishing validity of arguments.
- Indian Logic: Means of knowledge.
- Pramanas: Pratyaksha (Perception), Anumana (Inference), Upamana (Comparison), Shabda (Verbal testimony), Arthapatti (Implication) and Anupalabddhi (Non-apprehension).
- Structure and kinds of Anumana (inference), Vyapti (invariable relation), Hetvabhasas (fallacies of inference).

(15hrs)

Unit-VII Data Interpretation

- Sources, acquisition and classification of Data.
- Quantitative and Qualitative Data.
- Graphical representation (Bar-chart, Histograms, Pie-chart, Table-chart and Line-chart) and mapping of Data.
- Data Interpretation.
- Data and Governance.

(5hrs)

Unit-VIII Information and Communication Technology (ICT)

- ICT: General abbreviations and terminology.
- Basics of Internet, Intranet, E-mail, Audio and Video-conferencing.
- Digital initiatives in higher education.
- ICT and Governance.

(5hrs)

Unit-IX People, Development and Environment

- Development and environment: Millennium development and Sustainable development goals.
- Human and environment interaction: Anthropogenic activities and their impacts on environment.
- Environmental issues: Local, Regional and Global; Air pollution, Water pollution, Soil pollution, Noise pollution, Waste (solid, liquid, biomedical, hazardous, electronic), Climate change and its Socio-Economic and Political dimensions.
- Impacts of pollutants on human health.
- Natural and energy resources: Solar, Wind, Soil, Hydro, Geothermal, Biomass, Nuclear and Forests.
- Natural hazards and disasters: Mitigation strategies.
- Environmental Protection Act (1986), National Action Plan on Climate Change, International agreements/efforts -Montreal Protocol, Rio Summit, Convention on Biodiversity, Kyoto Protocol, Paris Agreement, International Solar Alliance.

(10hrs)

Unit-X Higher Education System

- Institutions of higher learning and education in ancient India.
- Evolution of higher learning and research in Post Independence India.
- Oriental, Conventional and Non-conventional learning programmes in India.
- Professional, Technical and Skill Based education.
- Value education and environmental education.
- Policies, Governance, and Administration.

(10hrs)

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Thiruvananthapuram
Dated. 15.03.2021

Sd/-
Director

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

Certificate Course in Computer Network Administration

[Scheme 2021]

Course Code : ST 2107

1. Aim: To provide state of the art training in basic Computer Hardware and Network administration techniques. It also provides necessary hands on training in Computer Hardware maintenance, Network setup, troubleshooting and repair, so that the student will be equipped with skills which will provide him/her employment opportunities in private/public sectors and also for self employment.

2. Duration of the course : 6 Months (300Hrs)
3. Eligibility for admission : CO & PA (Pass) / Diploma (Course completed) / B.Tech (course completed)

4. Intake : 40 Students/batch

5. Course Fee : Rs. 12,000/-+GST applicable.

6. Eligibility for Certificate:

   i) Students should have minimum 75% attendance during the course.

   ii) Students should pass the evaluation test conducted by the training centre.

Thiruvananthapuram
Dated. 15.03.2021

Sd/-
Director

[Course Code : ST 2107]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Certificate Course in Computer Network Administration

[Scheme 2021] 300 Hrs (6 months)

Module 1: Computer Fundamentals & Assembling (35Hrs-10Hrs Theory+25Hrs 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, l/O ports, Data ports, interface connectors
    f) Monitor interfacing (VGA, HDMI, AV etc.)
    g) Speaker and headphone interfacing
    h) Printer and Scanner lnterfacing
    i) Troubleshooting techniques
- Assembling of Desktop Computer
- Preventive maintenance

Module 2: Computer Networking (55Hrs-20Hrs Theory+35Hrs Practical)

- Components of the Computer Networks wired and Wi-Fi.
- Familiarization with various Network devices, Connectors and Cables. Understanding the Layout of network. Crimping and practice with straight and cross CAT 6 cables.
- Install & configure a Network. Network Components –Modems, Firewall, Hubs, Bridges, Routers, Gateways, Repeaters, Switches, Access point, etc.– their types, functions, advantages and applications.
- IP Routing in Network .IP Addressing & TCP/IP. IP addressing technique (IP4/IP6) and Subnetting and Supernetting the network.
- Practice TCP/IP Utilities : PING,IPCONFIG,HOSTNAME,ROUTE, TRACERT
- Protocols - TCP/IP, FTP, Telnet, Hyper Text Transfer Protocol (HTTP), Simple Network Management Protocol etc. Theory on subnet setting IP Address (IP4/IP6) supernet and subnet Mask, Classes of IP Addressing
- 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.
- Comparison of OSI and TCP/IP models
- Comparison of TCP and UDP protocols
- Infrastructure components in an enterprise network (Firewalls, Access points, Wireless controllers)
- Network topologies (Star, Mesh, Hybrid)
- Cabling types
- Configuration of IPv4 addressing and subnetting
- Types of IPv4 address (Unicast, Broadcast, Multicast)
- Private IPv4 addressing

- IPv6 addressing scheme (Global unicast, Unique local, Link local, Multicast, Anycast)
- Configuration of IPv6 addressing and subnetting
- Port security
- IPv4 and IPv6 traffic filtering
- Network security
- Firewall concept

Module 3: Switching (75Hrs-25Hrs Theory+50Hrs Practical)

- Switching concepts (MAC learning, Frame switching & flooding, MAC address table)
- Troubleshooting of cable issues (collisions, errors, duplex, speed)
- Configuration of switch connectivity (Trunk ports, Add and remove VLANs on a trunk, Native VLAN)
- Configure VACL and PACL(VLAN Access List, Port Access List)
- Study about STP protocols

Module 4: Routing (75Hrs-25Hrs Theory+50 Hrs Practical)

- Introduction to Routing
- Static and Dynamic routing
- Components of a routing table
  - Prefix
  - Network mask
  - Next hop
  - Routing protocol code
  - Administrative distance
  - Metric
  - Gateway of last resort
- Distance vector and link state routing protocols
- Path vector routing
- Interior and Exterior routing protocols
- Adding/Removing Routing Table entry
- Configuration of IPv4 and IPv6 static routing
- Troubleshooting of end-to-end connectivity issues

Module 5: Infrastructure Concepts (60Hrs-20Hrs Theory+40Hrs Practical)

- Introduction to DNS(Name space, DNS in Internet, DNS messages)
- DHCP (Network Address Resolution (NAT), Forwarding of ip packets)
  - Server
  - Client
- Troubleshoot DHCP connectivity issues
- Configuration of NAT
  - Static
  - Pool
  - PAT

*****

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Dated. 15.03.2021

Sd/-
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INSTITUTE OF HUMAN RESOURCES DEVELOPMENT
(Established by Govt. of Kerala)
Thiruvananthapuram, Kerala.

Short-term course on

CCTV INSTALLATION

[Scheme 2021]

Course Code : ST2108

1. AIM: This program is aimed at training candidates for the job of a "CCTV Installation Technician", in the Electronics Sector/Industry and aims at building the following key competencies amongst the learner

2. Duration of the course : 35 Hrs (within 1 months)

3. Eligibility for admission : SSLC or equivalent

4. Intake : 30 students/ batch

5. Course fee : RS. 2000/-+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. 15.03.2021

Sd/-
Director

[Course Code : ST 2108]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

CCTV INSTALLATION

[Scheme 2021]

Module 1: Basics of CCTV security surveillance system -

2 days (10 hrs- 5 hrs theory + 5 hrs practical)

a. Explain the facts of video surveillance.
b. Explain and construct various nodes of CCTV surveillance system.
c. Constructing of a video surveillance system.
d. Explain function of blocks and equipment required to implement a video surveillance system.
e. Understanding the facts about CCTV and its interfacing devices

Module 2: Familiarization of components –

2 days (10 hrs - 2 hrs theory +8 hrs practical)

Elements of CCTV systems such as

a. camera,
b. DVR,
c. monitor,
d. cable,
e. power supply,
f. connectors.

Module 3 : Implementation -

3 days (15 hrs- 5 hrs theory +10 hrs practical)

a. Mounting of CCTV camera so as to cover maximum area.
b. Connection of each module to the DVR.
c. Connect the monitor (TV / PC) with the video output connection in the DVR

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Dated. 15.03.2021

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

ENTRANCE COACHING TO HIGHER SECONDARY STUDENTS

[Scheme 2021]

Course Code : ST2109

1. Aim: Imparting entrance coaching to school going Higher Secondary students for affordable fees.

2. Course Timing : 7 am to 8.30 am on weekdays
9.30 am to 04.00 pm on Saturdays

3. Eligibility for admission : General Guidelines to be followed

4. Sanctioned for intake : 50 Nos.

5. Course Fees : 15000 (+GST) -3 subjects
(5000/- for each subject)

6. Facilities Needed : Class rooms in the school

Subject	Duration (Per week)
Physics	3 hrs
Chemistry	3 hrs
Biology	3 hrs
Mathematics	3 hrs
Total	12 hours per week (total 480 hours)

Thiruvananthapuram
Dated. 15.03.2021

Sd/-
Director

[Course Code :ST2109]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

ENTRANCE COACHING TO HIGHER SECONDARY STUDENTS

[Scheme 2021] (Duration : 480 hrs.)

KEAM syllabus

- Physics
- Mathematics
- Chemistry
- Biology

Physics Syllabus:

- Introduction And Measurement
- Description Of Motion In One Dimension
- Description Of Motion In Two And Three Dimensions
- Laws Of Motion
- Work, Energy And Power :
- Motion Of System Of Particles And Rigid Body Rotation
- Gravitation
- Mechanics Of Solids And Fluids
- Heat And Thermodynamics
- Oscillations
- Waves
- Electrostatics
- Current Electricity
- Magnetic Effect Of Current And Magnetism
- Electromagnetic Induction And Alternating Current
- Electromagnetic Waves
- Optics
- Dual Nature Of Matter And Radiations
- Atomic Nucleus
- Solids And Semiconductor Devices
- Principles Of Communications

Mathematics Syllabus:

ALGEBRA:

- Sets, Relations And Functions
- Complex Numbers
- Quadratic Equations
- Sequences and Series
- Permutations, Combinations, Binomial Theorem and Mathematical Induction
- Matrices and Determinants
- Linear In equations
- Mathematical Logic and Boolean Algebra

TRIGONOMETRY

- Trigonometric functions and Inverse Trigonometric functions
- Trigonometric functions of multiple and submultiples of numbers.
- Inverse Trigonometric functions

GEOMETRY

- Cartesian System of Rectangular Co ordinates
- Lines and Family of lines
- Circles and Family of circles
- Conic sections
- Vectors
- Three Dimensional Geometry

Statistics

- Statistics and probability

Calculus

- Functions, Limits and continuity
- Differentiation
- Application of Derivatives
- Indefinite Integrals
- Definite Integrals
- Differential Equations

Chemistry syllabus:

- basic concepts and atomic structure
- bonding and molecular structure
- states of matter
- periodic properties of elements and hydrogen
- s-block elements and principles of metallurgy
- p-block elements
- d-block and f-block elements
- thermodynamics
- chemical equilibrium
- solutions
- redox reactions and electro chemistry
- chemical kinetics
- surface chemistry
- coordination compounds and organometallics :
- basic principles, purification and characterization of organic compounds
- hydrocarbons
- organic reaction mechanism
- stereochemistry
- organic compounds with functional groups containing halogens
- organic compounds with functional groups containing oxygen
- organic compounds with functional groups containing nitrogen
- polymers and biomolecules
- environmental chemistry and chemistry in everyday life

Biology Syllabus:

- diversity in the living world
- plant kingdom
- cell and cell division
- physiology of plants
- reproduction, growth and development
- ecology and environment
- biotechnology
- origin and evolution of life
- animal kingdom
- structural organization of the body :
- genetics
- physiology of animals
- reproduction and development in animals
- biodiversity and conservation
- biology in human welfare

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Dated. 15.03.2021

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Director

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

GATE Preparatory Course

[Scheme 2021]

Course Code : ST2110

1. Aim : To provide coaching to secure significance score in GATE examination.
2. Duration of the course : 450 hours (within 1 year)
3. Eligibility for admission : B.Tech doing students
4. Intake : 50 students.
5. Course Fee : Rs.15000/- + GST

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Dated. 15.03.2021

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Director

Course Code : ST2110

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

GATE PREPARATORY COURSE

[Scheme 2021]

Duration : 450 Hours

Section 1: Engineering Mathematics 60hrs

Linear Algebra: Vector space, basis, linear dependence and independence, matrix algebra, eigen values and eigen vectors, rank, solution of linear equations - existence and uniqueness (8 hrs)

Calculus: Mean value theorems, theorems of integral calculus, evaluation of definite and improperi integrals, partial derivatives, maxima and minima, multiple integrals, line, surface and volume integrals, Taylor series. (12 hrs)

Differential Equations: , First order equations (linear and nonlinear), higher order linear differential equations, Cauchy's and Euler's equations, methods of solution using variation of parameters, complementary function and particular integral, partial differential equations, variable separable method, initial and boundary value problems. (10 hrs)

Vector Analysis: Vectors in plane and space, vector operations, gradient, divergence and curl, Gauss's, Green's and Stoke's theorems. (8 hrs)

Complex Analysis: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula; Taylor's and Laurent's series, residue theorem. (7 hrs)

Numerical Methods: Solution of" nonlinear equations, single and multi-step methods for differential equations, convergence criteria. (5 hrs)

Probability and Statistics: Mean, median, mode and standard deviation; combinational probability, probability distribution. functions - binomial, Poisson, exponential and normal; Joint and conditional probability; Correlation and regression analysis. (10 hrs)

Section 2: Networks, Signals and Systems 90 hrs

Network solution. methods: nodal and mesh analysis; Network theorems: superposition, Thevenin and Norton's, maximum power transfer; Wye-Delta transformation; Steady state sinusoidal analysis using phasors; Time domain analysis of simple linear circuits; Solution of network equations using Laplace transform; Frequency domain analysis of RLC circuits; Linear 2-port network. parameters: driving point and 'transfer functions; State equations for networks. Continuous-time signals: Fourier series and Fourier transform representations, sampling theorem and applications; Discrete-time signals: discrete tlme Fourier transform (DTFT), DFT, FFT, Z-transform, interpolation of discrete-time signals; LTI systems: definition and properties, causality, stability, impulse response, convolution , poles and zeros,·· parallel and cascade structure, frequency response, group delay, phase delay, digital filter design techniques.

Section 3: Electronic Devices 40 hrs

Energy bands in·: intrinsic and extrinsic silicon; Carrier transport: diffusion current, drift current, mobility and

resistivity; Generation and recombination of carriers; Poisson and continuity equations; P-N junction, Zener diode , BJT, MOS capacitor, MOSFET, LED, photo diode and solar cell; Integrated circuit fabrication process: oxidation, diffusion, ion implantation, photolithography and twin-tub CMOS process.

Section 4: Analog Circuits 45 hrs

Small signal equivalent circuits of diodes, BJTs and MOSFETs; Simple diode circuits: clipping, clamping and rectifiers; Single-stage BJT and MOSFET amplifiers: biasing, bias stability, mid frequency small signal analysis and frequency response; BJT and MOSFET, Amplifiers : multi-stage, differential, feedback, power and operational; Simple op-amp circuits; Active filters; Sinusoidal oscillators: criterion for oscillation, single-transistor and opamp configurations; Function generators, wave-shaping circuits and 555 timers; Voltage reference circuits; Power supplies: ripple removal and regulation.

Section 5: Digital Circuits 50 hrs

Number systems; Combinational circuits: Boolean algebra, minimization of functions using Boolean . identities and Karnaugh map, logic gates and their static CMOS implementations, arithmetic circuits, code convert ers multiplexers, decoders and PLAs; Sequential circuits: latches and fli p-flops, counters, shift-registers and finite state machines; Data converters: sample and hold circuits, ADCs and DACs; Semiconductor memories: ROM, SRAM, DRAM; 8-bit microprocessor (8085) :

architecture, programming, memory and I/O interfacing.

Section 6: Control Systems 45 hrs

Basic control system components; Feedback principle; Transfer function; Block diagram representation; Signal ,flow graph; Transient and steady-state analysis of LTI systems; Frequency response; Routh-Hurwitz and Nyquist stability criteria; Bode and root-locus plots; Lag, lead and lag lead compensation; State variable model and solution of state equation of LTI syst ems.

Section 7: Communication 45 hrs

Random processes: autocorrelation and power spectral density, properties of white noise, filtering of random signals through LTI systems; Analog communications: amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM, superheterodyne receivers, circuits for analog communications; Information theory: entropy, mutual information and channel capacity theorem; Digital communications: PCM, DPCM, digital modulation schemes, amplitude, phase and frequency shift keying (ASK, PSK, FSK), QAM, MAP and ML decoding, matched filter receiver, calculation of bandwidth, SNR and BER for digital modulation; Fundamentals of error correction, Hamming codes ; Timing and frequency synchronization, inter-symbol interference and its mitigation; Basics of TDMA, FDMA and CDMA.

Section 8: Eletromagnetics 45 hrs

Electrostatics; Maxwell's equations: differential and integral forms and their interpretation, boundary conditions, wave equation Poynting vector; Plane waves and properties: reflection and refraction, polarization, phase and group velocity, propagation through various media, skin depth; Transmission lines: characteristic impedance, impedance matching, impedance transformation,·. s- parameters, Smith chart; Waveguides: modes, boundary conditions, cut-off frequencies, dispersion relations; Antennas: antenna types, radiation pattern, gain and directivity, return loss, antenna arrays; Basics of radar; Light propagation in optical fibers.

·Revision Classes (30 hrs)

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Thiruvananthapuram Sd/-
Dated. 15.03.2021 Director

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

Short-term course on

SHORT TERM COURSE ON PYTHON PROGRAMMING

[Scheme 2021]

Course Code : ST2111

1. Aim: To get basic knowledge about Python. It is the leading language of many data scientist. Artificial Intelligence. is the next huge development in the tech world. Python programming is used in AI applications. Python engineers have some of the highest salaries in the industry. so that the student will have employment opportunity in private firms and also for self employment.

2.	Duration of the course	:	45 Hrs. (with in 2 months period)
3.	Eligibility for admission	:	Plus two or equivalent
4.	Sanctioned Intake	:	20 students/batch (minimum intake 15 students
5.	Course Fee	:	Rs. 3000/-+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
Dated. 15.03.2021

Sd/-
Director

[Course Code : ST2111]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

SHORT TERM COURSE ON PYTHON PROGRAMMING

[Scheme 2021]

Duration: 45 Hrs.

Module 1

Introduction: Python overview, Identifiers, Keywords, Variables, Standard data types, Operators and expressions. **Statements**: Statements, Control statements, Iteration- *while, do-while, for. (Hands o sections included)*

Module 2

Functions: Introduction, Built-in functions, User defined functions, Parameters and arguments, Function calls, Recursive function.

Module 3

Strings and Lists: String traversals and comparisons with examples. **Tuples and Dictionaries:** Operations and examples.

****

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Dated. 15.03.2021

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Director

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

Short-term course on

ANDROID DEVELOPMENT

[Scheme 2021]

Course Code : ST2112

1. Aim: To get basic knowledge about Python. It is the leading language of many data scientist. Artificial Intelligence. is the next huge development in the tech world. Python programming is used in AI applications. Python engineers have some of the highest salaries in the industry. so that the student will have employment opportunity in private firms and also for self employment.

2. Duration of the course : 45 Hrs. (with in 2 months period)
3. Eligibility for admission : Plus two or equivalent
4. Sanctioned Intake : 20 students/batch
5. Course Fee : Rs. 3500/-+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
Dated. 15.03.2021

Sd/-
Director

[Course Code : ST2112]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

ANDROID DEVELOPMENT

[Scheme 2021]

Duration: 45 Hrs.

Module 1

Introduction to Android. Smartphone features. Installing the SDK. Creating Android Emulator. Installing Eclipse. Installing Android development tools. Choosing which Android version to use.

Module 2

Android Life cycle. Android applications structure. Creating a project. Working with android manifest.XML Various controls. Layouts , Text controls Button controls Images Supporting Multiple Screen Activities. Application context. Intent Web View

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Dated. 15.03.2021

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

Short-term course on

ARDUINO AND RASPBERRY PI PROGRAMMING

[Scheme 2021]

Course Code : ST2113

1. Aim: To aware about Arduino and Raspberry pi.. So that the student will have employment opportunity in private firms and also for self employment.

2. Duration of the course : 45 Hrs. (within 2 months period)
3. Eligibility for admission : Plus two or equivalent
4. Sanctioned Intake : 20 students/batch
5. Course Fee : Rs. 1000/-+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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Thiruvananthapuram
Dated. 15.03.2021

Sd/-
Director

[Course Code : ST2113]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

ARDUINO AND RASPBERRY PI PROGRAMMING

[Scheme 2021]

Duration: 45 Hrs.

Module 1

Arduino Architecture, Arduino variable, Arduino operators- Arithmetic operators, relational operators, Increment operators.

Module 2

Arduino loops- while loop, if loop, if-else loop, if-else-if loop. Logical operators- switch and break.

Conditional operators, Functions, returning a value from functions. Strings, Serial inputs

Module 3

Architecture of Raspberry pi, Network configuration, Application using Raspberry pi

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Dated. 15.03.2021

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

Short-term course on

LAPTOP AND MOBILE SERVICING

[Scheme 2021]

Course Code : ST2114

1. Aim: To get knowledge about laptop and mobile phones. Everyone use mobile phones and services are very necessary for everyone. so that the student will have employment opportunity in private firms and also for self employment.

2. Duration of the course : 45 Hrs. (with in 2 months period)
3. Eligibility for admission : Plus two or equivalent
4. Sanctioned Intake : 25 students/batch
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 conducted by the training centre.

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Dated. 15.03.2021

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[Course Code : ST2114]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

LAPTOP AND MOBILE SERVICING

[Scheme 2021]

Module 1

General information of Laptop: Hardware overview, Maintenance and care of laptop, common laptop problems, Diagnose, Troubleshoot and Repair a laptop, Laptop overheating issue, Diagnosing and Repairing the laptop- Slow Hard disc.

Module 2

Disassembling and identifying different parts of the cell phone, Acquiring knowledge on different tool for servicing, Identifying the fault and Troubleshooting, Hardware servicing, Software Servicing.

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Dated. 15.03.2021

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

Short-term course on

TALLY ERP 9

[Scheme 2021]

Course Code : ST2115

1. Aim: To provide awareness and give sufficient hands on training in the Tally ERP 9 software
2. Duration of the course : 75 hours
3. Eligibility for admission : Plus Two and above
4. Intake : 40 students.
5. Course Fee : 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.
7. **Note: This course it to be carried out only after getting permission from Tally by respective institution**.

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[Course Code : ST2115]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

TALLY ERP 9

[Scheme 2021]

Module 1: Accounting Principles (10 Hrs)

Accounting –Need of accounting-Transaction-Types of accounts-accounting principles-concepts and conventions .Double entry system of book keeping, mode of accounting, Financial statements, Transactions, Recording Transactions.

Module 2:Using Tally ERP 9 Accounting software (20 Hrs)

Tally-Features of Tally ERP 9-F11 features-F12 Configuration-Gate way of Tally-Company creation-Select/Shut/Alter/Delete a company-Voucher entry-voucher types-entry/alter/delete vouchers –Accounting vouchers, inventory vouchers, Invoicing.

Module 3: Advanced Accounting and Inventory in Tally ERP 9 (20 Hrs)

Bill wise Details, Cost centre and cost categories, Bank reconciliation, Interest calculation, Budget and controls. Order processing, Reorder levels, Tracking numbers, Bill of Materials, Stock valuation, zero valued entries, Inventory aging analysis. Inventory-Stock group-Stock categories- godowns-Units of measure-stock items-Inventory vouchers.

Module 4:Accounting and Inventory Reports (20 Hrs)

Trading, Profit and loss account-Balance sheet-Ledgers-Cost centre and budget reports-Cash book and Bank book-Inventory reports-Decision supporting tools-Ratio analysis-Cash flows-Fund flow-Budgeting system-Printing of reports-Voucher and bill printing etc.

Module 5:Duties and Taxes (5 Hrs)

Methods of Duties and Taxes in Tally ERP 9-Transaction under Vat-VAT reports. GST-CGST-SGST-CST-CST Reports.

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Thiruvananthapuram
Dated. 15.03.2021

Sd/-
Director

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

Short-term course on

MALAYALAM COMPUTING

[Scheme 2021]

Course Code : ST2116

1. Aim: To provide awareness and give sufficient hands on training in Windows Operating System and Malayalam Computing
2. Duration of the course : 60 hours with 2 months (vacation time only)
3. Eligibility for admission : 8th Class and Above
4. Intake : 40 students.
5. Course Fee : 2000 + 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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Dated. 15.03.2021

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[Course Code : ST2116]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

MALAYALAM COMPUTING

[Scheme 2021]

Module 1:Fundamentals of computer (10Hrs)

Application and usage of computer-Classification of computers-Functional blocks of computers-Block diagram-hardware software - Memory devices-High/Low level languages

Module 2: Windows (5Hrs)

Fundamentals of windows - Parts and use of windows-Using different applications available in the operating system.

Module 3:Word Processing (10 Hrs)

Using microsoft windows-features of word processor-Starting Malayalam application - Switching between Malayalam and English key board-Saving, copying, deleting and editing documents. Typing- text, inserting, copying, cutting, pasting etc. Formatting text using different fonts styles-Setting paragraph options-tabs and indents-Creating tables-inserting and deleting rows and columns-merging and splitting cells-page setup-previewing and printing documents**.**

Module 4:Malayalm computing (20Hrs)

Familiarization of Malayalam fonts - Malayalam transliteration-Enabling malayalam in windows and linux -ISM installation-Use of ISM-ISM malayalam keyboard-Familiarization of malayalam keys using inscript keyboard.

Module 5:Malayalm Typing (15Hrs)

Exercises - Speed test etc..

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Short-term Course on LET Coaching

[Scheme 2021]

Course Code : ST2117

1. Aim: To provide coaching to secure significance score in LET Examination
2. Duration of the course : 200 hrs
3. Eligibility for admission : Diploma
4. Intake : 50
5. Course Fee : 5000 /- + GST

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[Course Code :ST2117]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term Course on LET Coaching

[Scheme 2021] (Duration : 200 hrs.)

Engineering Mathematics

Module – 1 :

Single Variable Calculus and Infinite series, Basic ideas of infinite series and convergence, Geometric series, Harmonic series, Convergence tests, comparison, ratio, root tests Alternating series, Leibnitz Test, Absolute convergence, Maclaurins series, Taylor series, radius of convergence

Module – 2 :

Partial derivatives and its applications, Partial derivatives of functions of more than two variables, Higher order partial derivatives, differentiability, Differentials and local linearity, Maxima and Minima of functions of two variables, Extreme value theorem relative extrema

Module – 3

Calculus of vector valued functions, Introduction to vector valued functions, parametric curves in 3-space,Limits and continuity, derivatives, tangent lines, derivative of dot and cross product ,Definite integrals of vector valued functions, unit tangent, acceleration and speed ,Normal and tangential components of acceleration, Directional derivatives and gradients-tangent planes and normal vectors

Module – 4

Multiple integrals, Double integrals, Evaluation of double integrals, Double integrals in nonrectangular coordinates reversing the order of integration, Area calculated as a double integral, Triple integrals (Cartesian co-ordinates only), volume calculated as a triple integral

Module – 5

Topics in vector calculus, Vector and scalar fields, Gradient fields, conservative fields and potential functions, Line integrals, work as a line integral Independence of path conservative

Module – 6

Topics in vector calculus, Green's Theorem, surface integrals, Divergence Theorem, Stokes' Theorem

Electronics & Communication Engineering

Module – 1

Evolution of electronics, impact of electronics in industry and in society. Resistors Capacitors: Types, Specifications, Standard values, marking colour coding Inductors and Transformers: Types, Specifications, and Principles of working. Electro mechanical components: relays and contactors.

Module – 2

Diodes: Intrinsic and extrinsic semiconductors, PN junction diode, barrier potential, V-I characteristics, Effect of temperature. Equivalent circuit of a diode. Piece wise linear model. Specification parameters of diodes and numbering. Zener diode, Varactor diodes, characteristics, working principle of LED, photo diode, solar cell.

Module – 3

Bipolar Junction Transistors: Structure, typical doping, Principle of operation, concept of different configurations. Detailed study of input and output characteristics of common base and common emitter configuration, current gain, comparison of three configurations. Concept of load line and operating point. Need for biasing and stabilization, voltage divider biasing, Transistor as amplifier, switch, RC coupled amplifier and frequency response. Specification parameters of transistors and type numbering

Module – 4

Junction Field Effect Transistors: Structure, principle of operation, characteristics, comparison with BJT. MOSFET: Structure, principle of operation of Enhancement type MOSFET, Current voltage characteristics, Depletion-type MOSFET. Principle of operation of Photo transistor, UJT, SCR

Module – 5

Diode circuits and power supplies: Series and parallel diode circuits, Clippers, Clampers, Voltage multipliers. Half-wave and full wave (including bridge) rectifiers, Derivation of Vrms, Vdc, ripple factor, peak inverse voltage, rectification efficiency in each case, capacitor filter, working and design of a simple Zener voltage regulator. Block diagram description of a DC Power supply, Principle of SMPS.

Module – 6 .

Electronic Measurements and measuring Instruments. Generalized performance parameters of instruments: error, accuracy, sensitivity, precision and resolution. Principle and block diagram of analog and digital multimeter, Block diagram of CRO, Measurements using CRO, Lissajous patterns, Principle and block diagram of DSO, function generator. Testing of Electronic components.

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Short-term Course on COMPUTER HARDWARE

[Scheme 2021]

Course Code : ST2118

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** : 40 Hrs. (Within 2 months period)
3. **Eligibility for admission :** 10th Standard
4. **Intake** : 40 Students/batch
5. **Course Fee** : Rs. 2,500/- + 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 :ST2118]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short term Course on
COMPUTER HARDWARE

[Scheme 2021] (Duration : 40 months)

Module – 1 : Introduction about Computer (Theory 2 Hrs + Practical 2 Hrs)

1.1. Basics of computer
1.2. Organization of computer.
1.3. Software and hardware.
1.4. Input/output devices.

Module – 2 : Basic networking concepts (Theory 6 Hrs + Practical 1 Hrs)

2.1 Network topologies:
2.1.1 LAN, WAN, MAN
2.2 Networking Model
2.2.1. The OSI model
2.2.2. TCP/ IP Model
2.3 Network adapters.
2.4 Introducing protocols.

Module – 3 : Introduction to various networking devices (Theory 4 Hrs + Practical 2 Hrs)

3.1 Routers.
3.2 Switches.
3.3 Modems.
3.4 Hubsetc.
3.5 Wired and Wireless technology.

Module – 4 : Inside the PC (Theory 5 Hrs + Practical 5 Hrs)

4.1 Opening the PC and identification.
4.2 Study of different Components
4.3 Assembling and disassembling.

Module – 5 : Network basic and configuration (Theory 8 Hrs + Practical 5 Hrs)

5.1 Setting IP addresses,
5.2 Sharing files and folders.
5.3 Network troubles hooting.
5.4 PING test, ip config etc.

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INSTITUTE OF HUMAN RESOURCES DEVELOPMENT
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Certificate course in Electrical Wireman

(Kerala State Electricity Licensing Board recognized institute for electrical wireman course)
[Scheme 2021]

Course Code : ST2119

1.Aim: To prepare the candidate for the job of an electrician or a wireman. One of the eligibility criteria to apply for Electrical Wireman Competency Certificate and Permit issued by Kerala state electrical inspectorate is to completed 10 months course (Electrical Wireman) conducted by an institution recognized by the Kerala State Electricity Licensing Board.

2. **Duration of the course** : 10 months
3. **Eligibility for admission :** (i)Should be in the age limit between18 -65
   (ii) Should have completed S.S.L.C. Course.
4. **Intake** : 15 Students/batch
5. **Course Fee** : Rs. 15,000/-. + GST
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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Dated. 15.03.2021

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[Course Code :ST2119]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Certificate course in Electrical Wireman

[Scheme 2021] (Duration : 10 months)

Module – 1 :
Basics of electrical and electronics engineering – Fundamental of electricity. Electron theory- free electron . Fundamental terms, definitions, units & effects of electric current. Types of wires & cables standard wire gauge Specification of wires & Cables insulation & voltage grades -Low , medium & high voltage Precautions in using various types of cables

Module – 2 :
Laws of electricity – Ohm's law, Kirchoffs law – Statement , Explanation, examples. Resistors -Law of Resistance. Series and parallel circuits. Common Electrical Accessories, their specifications- Explanation of switches lamp holders, plugs and sockets .

Module – 3 :
Chemical effect of electric current-Principle of electrolysis. Faraday's Law of electrolysis. Rechargeable dry cell, description advantages and disadvantages. Care and maintenance of cell. Lead Acid cell, general defects & remedies. Nickel Alkali Cell-description charging. Power & capacity of cells. Efficiency of cells

Module – 4 :
Magnetism - classification of magnets, methods of magnetising, magnetic materials. Properties, care & maintenance, methods of magnetising magnetic materials. Para & Diamagnetism and Ferro magnetic materials. Electromagnetic induction.

Module – 5 :
Working principles and circuits of common domestic equipments & appliances . Electrical measuring instruments- working

Module – 6 :
DC & AC Machines – Working- Characteristics – Practical application – Related problems

Module – 7 :
Electrical wiring , importance, I.E.E. rules. Types of wirings both domestic & industrial - Specifications for wiring – Grading of cables and current ratings. Principle of laying out in domestic wiring-testing by meggar Wiring system

Module – 8 :
Earthing - Principle of different methods of earthing. Importance of Earthing. -Earth Leakage Relay.

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PREPARATORY CLASSES FOR ELECTRICAL SUPERVISOR LICENSE

[Scheme 2021]

Course Code : ST2120

1. **Aim:** The course is structured to enable the candidates to appear for Supervisor interview with confidence..
2. **Duration of the course :** 40 hours
3. **Eligibility for admission :** Graduates in Electrical Engineering and Diploma Holders in Electrical with an experience of one year.
4. **Intake :** 30 Students/batch
5. **Course Fee :** Rs. 10,000/- + GST
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 :ST2120]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

PREPARATORY CLASSES FOR ELECTRICAL SUPERVISOR LICENSE

[Scheme 2021] (Duration : 40 Hrs)

Syllabus

- Basics of EEE for Field Practice
- Protection
- Earthing
- Cable Joining
- Clearances
- Special Type Installations
- Maintenance Practices
- Testing and Commissioning
- Electricity Regulations and Standards
- Safety Procedures
- Energy Conservation
- Preparation of Drawings
- Installation Procedures

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Short term Course on Computer Programming Fundamentals

[Scheme 2021]

Course Code : ST2121

1.Aim: The Aim of this program is to deliver basic knowledge of Computer programming languages especially C and Python. Hands on training during the LAB sessions, thus the debugging and coding skills can be created/ improved. So that the student's self-learning capacity can be improved.

2. **Duration of the course :** 70 Hrs. (Within 3 months period)
3. **Eligibility for admission :** B.Tech student
4. **Intake :** 50 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 :ST2121]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short term Course on Computer Programming Fundamentals

[Scheme 2021] (Duration : 70 Hrs)

Programming In C Language

Module 1 : **(Theory 6 Hrs + Practical 2 Hrs)**

Basics of Computer Hardware and Software Basics of Computer Architecture: processor, Memory, Input & Output devices Application Software & System software: Compilers, interpreters, High level and low level languages Introduction to structured approach to programming, Flow chart Algorithms, Pseudo code (bubble sort, linear search - algorithms and pseudocode)

Module 2 : **(Theory 7 Hrs + Practical 3 Hrs)**

Program Basics: Basic structure of C program: Character set, Tokens, Identifiers in C, Variables and Data Types , Constants, Console IO Operations, printf and scanf Operators and Expressions: Expressions and Arithmetic Operators, Relational and Logical Operators, Conditional operator, size of operator, Assignment operators and Bitwise Operators. Operators Precedence Control Flow Statements: If Statement, Switch Statement, Unconditional Branching using goto statement, While Loop, Do While Loop, For Loop, Break and Continue statements.(Simple programs covering control flow)

Module 3 : **(Theory 6 Hrs + Practical 3 Hrs)**

Arrays and strings Arrays Declaration and Initialization, 1-Dimensional Array, 2-Dimensional Array String processing: In built String handling functions (strlen, strcpy, strcat and strcmp, puts, gets) Linear search program, bubble sort program, simple programs covering arrays and strings

Module 4 : **(Theory 6 Hrs + Practical 3 Hrs)**

Working with functions Introduction to 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

Module 5 : **(Theory 6 Hrs + Practical 3 Hrs)**

Pointers and Files Basics of Pointer: declaring pointers, accessing data though pointers, NULL pointer, array access using pointers, pass by reference effect File Operations: open, close, read, write, append Sequential access and random access to files: In built file handling functions (rewind() ,fseek(), ftell(), feof(), fread(), fwrite()), simple programs covering pointers and files.

Programming in Python Language

Module 1: **(Theory 5 Hrs + Practical 2 Hrs)**
Introduction to Python-variables, expressions and statements, evaluation of expressions, precedence, string operations

Module 2: **(Theory 5 Hrs + Practical 2 Hrs)**
Functions, calling functions, type conversion and coercion, composition of functions, mathematical functions, user-defined functions, parameters and arguments.

Module 3: **(Theory 3 Hrs + Practical 2 Hrs)**
Strings and lists-string traversal and comparison with examples. Tuples and dictionaries-operations and examples

Module 4: **(Theory 4 Hrs + Practical 2 Hrs)**
Files and exceptions- text files, directories. Introduction to classes and objects-attributes, instances

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Thiruvananthapuram, Kerala.

Short-term course on

SOLAR PANEL INSTALLATION TECHNOLOGY

[Scheme 2021]

Course Code : ST2122

AIM : This program is aimed at training candidates for the job of a "Solar Panel Installation Technician", in the "Electronics" Sector/Industry and aimed to introduce the fundamentals of solar panel systems and study of solar panel installation and maintenance.

Duration of the course	:	50 Hrs (Within 2 months)
.Eligibility for admission	:	SSLC or equivalent
Intake	:	30 students/ batch
Course fee	:	RS.3000/-+GST

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.

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[Course Code :ST2122]

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term course on

SOLAR PANEL INSTALLATION TECHNOLOGY

[Scheme 2021]

Module 1: Basics of solar power plant system - (15 hrs 5. hrs theory + 10 hrs practical)

a. Basics on solar energy and power generation systems.
b. Basic principles of solar power (solar photovoltaic, solar thermal, dish type, solar tower)
c. Components of solar power systems
d. Basic electrical system and functioning of various electrical devices.
e. Precautions to be taken while handling different electrical and mechanical products .
f. Use instruments for measurement of various electrical parameters.

Module 2: Solar Panel and Battery types (15 hrs- 5 hrs theory + 10 hrs practical)

a. Solar panel types
b. Solar panel connection, series, parallel
c. Solar charge controller types
d. Solar Battery

Module 3 : Implementation (20 hrs- 5 hrs theory + 15 hrs practical)

a. Connect and test solar panel,
b. Connect and test Charge controller
c. Connect and test Battery bank
d. Connect and test Inverter.
e. Perform various tests and measurement pertaining to PV Modules and their installation as per IEC standards.
f. Installing the panel and connecting the system and check for functioning.

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Short-term Course on IoT & ROBOTICS

[Scheme 2021]

Course Code : ST2123

1. Aim: To give required training in IoT & Robotic
2. Duration of the course : 50 Hrs. (within 2 weeks)
3. Eligibility for admission : SSLC or equivalent
4. Sanctioned Intake : 40 students/batch
5. Course Fee : Rs. 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.

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Course Code : ST2123

INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term Course on IoT & ROBOTICS

[Scheme 2021] *Duration:* 50 Hrs.

Module 1: **(10 hours)**

Introduction to Arduino, Getting started with Arduino, Microcontrollers, Setup Arduino IDE
I/O port : LED Blinking, Delay Creation., Interfacing a switch,Wiring the Circuit and download the program, Display your name
LCD Interfacing : Wiring the Circuit and download the program
USART basics and Programming, Serial Port Interfacing, Display the data transmitted from the PC in the LCD

Module 2 **(10 hours)**
Analog To Digital Converter: ADC basics and interfacing, Interfacing Display the temperature reading from the sensor in the LCD Transmit the Temperature reading to the PC

Module 3 **(10 hours)**
Wireless Module Interfacing: Reading SMS, Controlling a device through sending SMS, Tracking using GPS, Controlling dc motor through wireless medium
Servo Motor and dc motorinterfacing : PWM basics, Servo Motor interfacing

Module 4 **(10 hours)**
Introduction and Basics of Python, Python Decision Making, Imperative/Procedural/Scripting
Python Loops, Python Function, Python Modules, Python File I/O
RASPBERRY PI: Raspberry Pi3 Evaluation board architecture.
Linux OS familiarization ,basic commands and utilities
Building and setting up RASPBIAN on the ki, Setting up BLE and WiFi on RASPBIAN
GPIO in RasberryPi,Serial Communication, Case Studies

Module 5: **(10 hours)**
Robotics: Introduction to Robotics, Overview of robot, Different Kinds of Robot
Hardware used for robot, L293D Motor driver
Familiarizing with Arduino IDE, Writing First Code: Blink LED, Blinking An LED external to the bordArduino digital Write Q and Robot control, Arduino digital Read Q and controlling robot using buttons, RF controlled Robot using Arduino,

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Short-term Course on

DTH SET-TOP BOX INSTALLATION AND SERVICE TECHNICIAN

[Scheme 2021]

Course Code : ST2124

1. Aim: To give required training in DTH Set-top Box Installation and Service Technician
2. Duration of the course : 50 Hrs. (within 2 weeks)
3. Eligibility for admission : SSLC or equivalent
4. Sanctioned Intake : 40 students/batch
5. Course Fee : Rs. 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.

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INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term Course on

DTH SET-TOP BOX INSTALLATION AND SERVICE TECHNICIAN

Course Code : ST2124

[Scheme2021] *Duration:* 50 Hrs.

Module 1 (10 hours)

DTH Installation :Procedure to be followed in Installation of DTH, familiarisation of various components a) Reflector Antenna b) RJ 6 cable c) Connectors d) Set up box e) Remote.

Module 2 (10 hours)

Dish Assembly : Procedure and practise the assembling the different component of Dish assembly, reflectorDish Assembly

Module 3 (15 hours)

Mount Assembly : The procedure of the mounting, LOS, Signal Peaking etc, Mount assembly, Connectorization - Demonstrate and Practise connectorization, Connectorization of cable with box and LNBF

Module 4 (15 hours)

Signal Peaking : To gauge the adeptness of trainees in signal peaking using Sat finder, Connectorization tool and inclinometer, Signal peaking with sat finder, HD PVR installation and VOD connection, differences between boxes, the process of installing a HD/PVR box.

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