CHRIST COLLEGE
(AUTONOMOUS), IRINJALAKUDA-KERALA

CERTIFICATE COURSES

ENHANCING CAREER AND JOB PROSPECTS

Initiated by **Internal Quality Assurance Cell**,
Christ College (Autonomous) Irinjalakuda

List of Courses

1. **Business Analyst Certification Program BACP**
2. **Certificate course in R programming**
3. **Certified Finance Professional + Internship**
4. **Data Analytics & Visualisation**
5. **DELF – DIPLÔME D'ÉTUDES EN LANGUE FRANÇAIS (A1-Diploma in French)**
6. **Diploma in Goods & Services Tax Practice**
7. **Microsoft Excel 2019**
8. **Python Programming**
9. **Solar Energy: Photovoltaic (PV) Technologies**
10. **Training Skill Development**
11. **Android Programming**
12. **Certificate course in GIS and remote sensing**
13. **Certificate Course in Statistical Analysis in Research using SPSS**
14. **Certificate Course on Chemical Analysis**
15. **HACCP LEVEL 3 (APPROVED BY HABC)**
16. **Journalism**
17. **Malayalam for Media**
18. **Programming in Matlab**
19. **Skill training for development communication**
20. **Advanced Certificate in Library Automation and Digital Archiving**
21. **Certificate Program in Tally**
22. **Introduction to biomedical imaging techniques**
23. **Taxonomy and bioecology of moths and wasps**
24. **Taxonomy and bioecology of spiders**

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC01**

Business Analyst Certification Program BACP

Will be offered in 2020-21 (online & flipped): **yes**

Course Status: **Available**   *Syllabus*

Offered by: **Department of Economics**

Eligibility: BA/BCOM/BBA/BCA/MA/MCOM/MBA/ (pursuing students)

Total Hours: 30

Duration: 6 months

Partnership with: Elm Institute, Chennai

Fee details

Total Fee:	5000
First Installment:	2500
Second Installment:	1500
Third Installment:	1000

Course Coordinator: Ms. Jean Maria George

Contact for more details: *jeanmariageorge@gmail.com*

CERTIFICATE COURSES

Enhancing career and job prospects
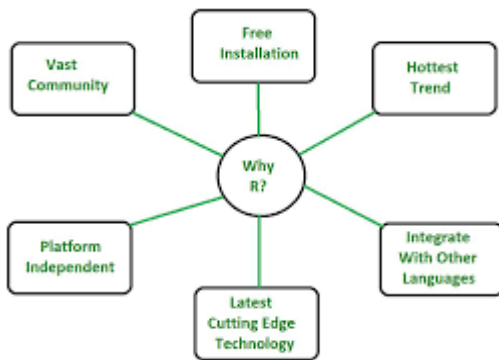
Course code: **CPCC02**

CERTIFICATE COURSE IN R PROGRAMMING

Will be offered in 2020-21 (online & flipped):   **yes**

Course Status: Available   *Syllabus*

Offered by: **Department of Statistics**

Eligibility: PLUS TWO/ Anyone with statistics background

Total Hours: 40

Duration: 3 months

Partnership with: Nil

Fee details

Total Fee:	3500
First Installment:	1500
Second Installment:	1000
Third Installment:	1000

Course Coordinator: GEETHU GOPINATH

Contact for more details: *geethugo@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC03**

Certified Finance Professional + Internship

Will be offered in 2020-21 (online & flipped): **yes**

Course Status: Available   *Syllabus*

Offered by: **Department of Commerce**

Eligibility: Plus Two Commerce + Entrance test

Total Hours: 150 hours (100 Hours Online training and 50 hours offline-onsite training)

Off line training)

Duration: 2 months

Partnership with: Outlook Eazy Link Academy, Thrissur

Fee details

Total Fee:	20000
First Installment:	10000
Second Installment:	5000
Third Installment:	5000

Course Coordinator: Muvish K M

Contact for more details: *muvishmurali@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES
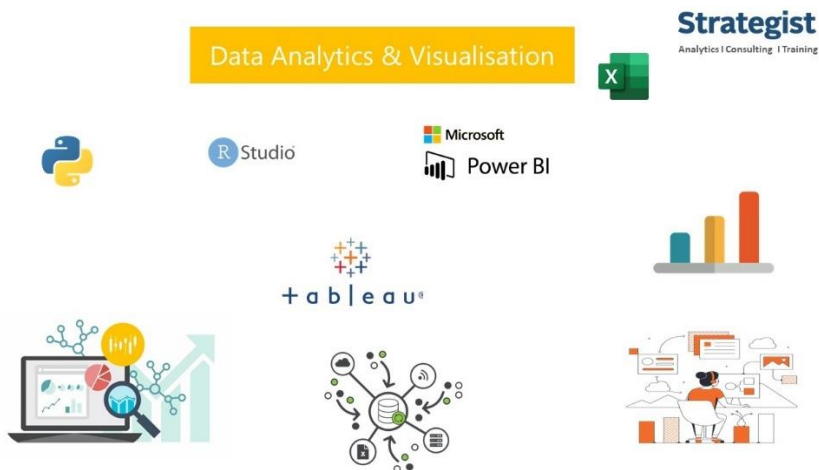
Enhancing career and job prospects

Course code: **CPCC04**

Data Analytics & Visualisation

Will be offered in 2020-21 (online & flipped):   **yes**

Course Status: Available   *Syllabus*

Offered by: **Department of Computer Science**

Eligibility: Undergraduate degree in any program/ students pursuing UG may also apply.

Total Hours: 30

Duration: 2 months

Partnership with: The Strategist, Cochin

Fee details

Total Fee:	3000
First Installment:	2000
Second Installment:	1000
Third Installment:	nil

Course Coordinator: Vandhana T V

Contact for more details: *vandana1808@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC05**

DELF – DIPLÔME D'ÉTUDES EN LANGUE FRANÇAIS (A1-Diploma in French)

Will be offered in 2020-21 (online & flipped):   **yes**

Course Status: Available   *Syllabus*

Offered by: **Department of French**

Eligibility: Any person wishing to enhance their French language skills may appear for DELF without pre-requisites.

Total Hours: 60

Duration: 6 months

Partnership with: Nil

Fee details

Total Fee:	6000
First Installment:	3000
Second Installment:	3000
Third Installment:	Nil

Course Coordinator: Prof. Rosemin Rich

Contact for more details: roseminrich43@gmail.com

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC06**

Diploma in Goods & Services Tax Practice

Will be offered in 2020-21 (online & flipped):   *yes*

Course Status: Available   *Syllabus*

Offered by: **Department of Commerce**

Eligibility: Plus two in Commerce

Total Hours: 120

Duration: 1 Year

Partnership with: Finmark Solutions, Cochin

Fee details

Total Fee:	6000
First Installment:	3000
Second Installment:	3000
Third Installment:	Nil

Course Coordinator: Shine Paul

Contact for more details: *shinebaboo@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC07**

Microsoft Excel 2019

Will be offered in 2020-21 (online & flipped):   **yes**

Course Status: **Available**   *Syllabus*

Certificate from Microsoft

Offered by: **Department of Computer Science**

Eligibility: Plus Two

Total Hours: 40

Duration: 3 Month

Partnership with: The Strategist, Cochin

Fee details

Total Fee:	3500
First Installment:	1500
Second Installment:	1500
Third Installment:	500

Course Coordinator: Dincy R Arikkat

Contact for more details: *dincy303@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC08**

Python Programming

Will be offered in 2020-21 (online & flipped):   *yes*

Course Status: Available   *Syllabus*

Offered by: **Department of B.Voc**

Eligibility: Plus Two (Science & Maths)

Total Hours: 65

Duration: 5 months

Partnership with: Star Innovations-TCS, Thrissur

Fee details

Total Fee:	5000
First Installment:	2000
Second Installment:	2000
Third Installment:	1000

Course Coordinator: Jeena George

Contact for more details: *jeenatg@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC09**

Solar Energy: Photovoltaic (PV) Technologies

Will be offered in 2020-21 (online & flipped):   **yes**

Course Status: Available   *Syllabus*

Offered by: **Department of Physics**

Eligibility: Plus 2 (Science)

Total Hours: 40

Duration: 15 weeks

Partnership with:

Fee details

Total Fee:	3000
First Installment:	1500
Second Installment:	1000
Third Installment:	500

Course Coordinator: Dr. Sudheer Sebastian K

Contact for more details: *sudheersebastian123@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC23**

Taxonomy and bioecology of moths and wasps

Will be offered in 2020-21 (online & flipped): **yes**

Course Status: **Available**   *Syllabus*

Offered by: **Department of Zoology**

Eligibility: Undergraduate Students Ongoing

Total Hours: 30

Duration: Three months

Partnership with:

Fee details

Total Fee:	1000
First Installment:	500
Second Installment:	500
Third Installment:	-

Course Coordinator: Dr. Abhilash Peter

Contact for more details: *abhilashpeter@gmail.com*

CERTIFICATE COURSES
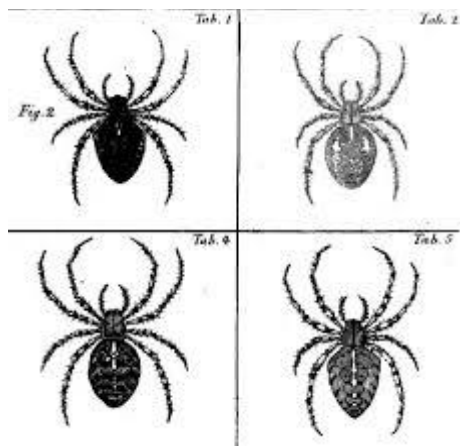
Enhancing career and job prospects

Course code: **CPCC24**

Taxonomy and bioecology of spiders

Will be offered in 2020-21 (online & flipped):   *yes*

Course Status: Available   *Syllabus*

Offered by: **Department of Zoology**

Eligibility: Undergraduate Students Ongoing

Total Hours: 30

Duration: Three months

Partnership with:

Fee details

Total Fee:	1000
First Installment:	500
Second Installment:	500
Third Installment:	-

Course Coordinator: Dr. Sudhikumar A V

Contact for more details: *avsudhi@rediffmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC10**

Training Skill Development

Will be offered in 2020-21 (online & flipped): **yes**

Course Status: Available   *Syllabus*

Offered by: **Department of Psychology**

Eligibility: UG

Total Hours: 40

Duration: 1 year

Partnership with: Nil

Fee details

Total Fee:		7000
First Installment:		3500
Second Installment:		2500
Third Installment:		1000

Course Coordinator: Durga K S

Contact for more details: *durgapsy1995@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC11**

Android Programming

Will be offered in 2020-21 (online & flipped): **no**

Course Status: Available   *Syllabus*

Offered by: **Department of Computer Science**

Eligibility: Plus Two

Total Hours: 120

Duration: 6 Months

Partnership with: Nexus Academy, Thrissur

Fee details

Total Fee:	6000
First Installment:	2000
Second Installment:	2000
Third Installment:	2000

Course Coordinator: Soumya.P.S

Contact for more details: *pssoumya.siva@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES
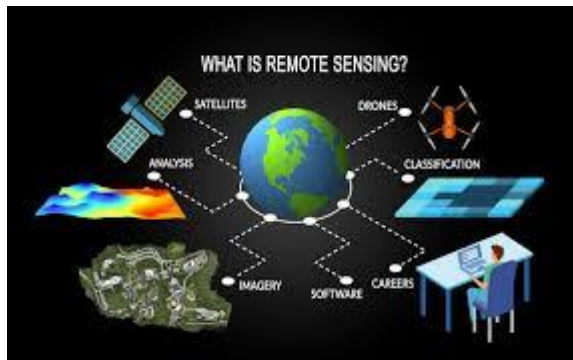
Enhancing career and job prospects

Course code: **CPCC12**

CERTIFICATE COURSE IN GIS AND REMOTE SENSING

Will be offered in 2020-21 (online & flipped): **no**

Course Status: Available   *Syllabus*

Offered by: **Department Of Geology And Environmental Science**

Eligibility: Undergraduate degree in any program/ students pursuing UG may also apply.

Total Hours: 60

Duration: 3 months

Partnership with: Nil

Fee details

Total Fee:	3500
First Installment:	2000
Second Installment:	1500
Third Installment:	Nil

Course Coordinator: Dr. LintoAlappat/ Ms. Shyma M.M.

Contact for more details: *alappatlinto@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC13**

Certificate Course in Statistical Analysis in Research using SPSS

Will be offered in 2020-21 (online & flipped):   **no**

Course Status: Available   *Syllabus*

Offered by: **Department of Commerce**

Eligibility: Graduation

Total Hours: 80

Duration: 6 months

Partnership with: Nil

Fee details

Total Fee:	3000
First Installment:	1000
Second Installment:	1000
Third Installment:	1000

Course Coordinator: Dr Josheena Jose

Contact for more details: *josheenajose@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC14**

Certificate Course on Chemical Analysis

Will be offered in 2020-21 (online & flipped):   **no**

Course Status: Available   *Syllabus*

Offered by: **Department of Chemistry**

Eligibility: Plus two Science

Total Hours: 40 (30 hours theory + 10 hours Lab)

Duration: 4 months

Partnership with: Nil

Fee details

Total Fee:	5000
First Installment:	2500
Second Installment:	1500
Third Installment:	1000

Course Coordinator: Dr Robinson P Ponminiessary

Contact for more details: *robinsonpp@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC15**

HACCP LEVEL 3 (APPROVED BY HABC)

Will be offered in 2020-21 (online & flipped):   **no**

Course Status: Available   *Syllabus*

Offered by: **Department of Food Technology**

Eligibility: PLUS TWO SCIENCE

Total Hours: 30

Duration: 4 DAYS

Partnership with: Advanssure Technical Solutions

Fee details

Total Fee:	7000
First Installment:	3000
Second Installment:	3000
Third Installment:	1000

Course Coordinator: AMBILY K M

Contact for more details: *ambilykm7@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC16**

Journalism

Will be offered in 2020-21 (online & flipped):   **no**

Course Status: Available   *Syllabus*

Offered by: **Department of English**

Eligibility: Plus Tow any Subject

Total Hours: 40

Duration: 5 months

Partnership with:

Fee details

Total Fee:	1500
First Installment:	750
Second Installment:	75
Third Installment:	

Course Coordinator: Dr. K J Varghese

Contact for more details: *vargheesekj@yahoo.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC17**

Malayalam for Media

Will be offered in 2020-21 (online & flipped):   **no**

Course Status: Available   *Syllabus*

Offered by: **Department of Malayalam**

Eligibility: Plus two

Total Hours: 45

Duration: 3 months

Partnership with: Nil

Fee details

Total Fee:	2500
First Installment:	1500
Second Installment:	500
Third Installment:	500

Course Coordinator: C V SUDHEER

Contact for more details: *cvsudheer2006@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC18**

Programming in Matlab

Will be offered in 2020-21 (online & flipped): **no**

Course Status: Available   *Syllabus*

Offered by: **Department of Mathematics**

Eligibility: Plus Two

Total Hours: 50

Duration: 3 Months

Partnership with: Network systems, Thrissur

Fee details

Total Fee:	5300
First Installment:	2700
Second Installment:	2600
Third Installment:	Nil

Course Coordinator: Dr. Seena V

Contact for more details: *seenavclt@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC19**

Skill training for development communication

Will be offered in 2020-21 (online & flipped): **no**

Course Status: Available   *Syllabus*

Offered by: **Department of Social work**

Eligibility: Plus two

Total Hours: 40

Duration: 4 months

Partnership with: Nil

Fee details

Total Fee:	1500
First Installment:	1000
Second Installment:	500
Third Installment:	Nil

Course Coordinator: Allwin Thomas N T

Contact for more details: *allwint12@gmail.com*

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC20**

Advanced Certificate in Library Automation and Digital Archiving

Will be offered in 2020-21 (online & flipped):   **no**

Course Status: Not available   *Syllabus*

Offered by: **Department of Library and Information Science**

Eligibility: MLISc/BLISc/ CLISc/Students enrolled above courses and working librarians

Total Hours: 60hrs

Duration: 6month

Partnership with:

Fee details

Total Fee:	3000
First Installment:	1500
Second Installment:	1000
Third Installment:	500

Course Coordinator: Nimitha K

Contact for more details: *nimithaprasoon@gmail.com*

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC21**

Certificate Program in Tally

Will be offered in 2020-21 (online & flipped): **no**

Course Status: Not available   *Syllabus*

Offered by: **Department of Commerce**

Eligibility: Plus two Commerce

Total Hours:

Duration:

Partnership with:

Fee details

    Total Fee:

    First Installment:

    Second Installment:

    Third Installment:

Course Coordinator: Shiny A O

Contact for more details: shinyraphael64@gmail.com

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

CERTIFICATE COURSES

Enhancing career and job prospects

Course code: **CPCC22**

Introduction to biomedical imaging techniques

Will be offered in 2020-21 (online & flipped):   **no**

Course Status: **Not available**   *Syllabus*

Offered by: **Department of Physics**

Eligibility: Plus 2 (Science)

Total Hours: 40 (30 hrs theory + 10 hrs lab visit)

Duration: 3 months

Partnership with: Amala Institute of Medical Sciences, Thrissur

Fee details

Total Fee:	3000
First Installment:	1500
Second Installment:	1000
Third Installment:	500

Course Coordinator: Dr. Sudheer Sebastian K

Contact for more details: *sudheersebastian123@gmail.com*

Business Analyst Certification Program BACP

Syllabus:-

Business analyst roles and responsibilities

Requirement gathering

Prototype requirement gathering

Functional requirement gathering

Non functional requirement gathering

SDLC

AGILE / SCRUM

User stories

Business strategy management

Unified Modeling Language UML

Business Documentation BRD,SRS FRD RTM

 Business Analysis tools and techniques

JADsessions

Business Writing-

building an effective business case

Business Manual

Analytical techniques

Strategic planning

Critical thinking

Negotiation of Application features

Projects and Internship certificate

PROJECT1

User end (FUNCTIONAL) requirement gathering for:-

1. Payroll software

2. School management system

3. eCommerce software – online shopping

4. Inventory management ERP

5. Billing

6. Hospitality

7. Insurance

PROJECT 2

Admin end and system end (NON FUNCTIONAL) requirement gathering for:-

1. Payroll software

2. School management system

3. eCommerce software – online shopping

4. Inventory management ERP

5. Billing

6. Hospitality

7. Insurance

#PROJECT 3

Business flow or activity diagram for:-

1. Payroll software

2. School management system

3. eCommerce software – online shopping

4. Inventory management ERP

5. Billing

6. Hospitality

7. Insurance

#PROJECT 4

User stories for:-

1. Payroll software

2. School management system

3. eCommerce software – online shopping

4. Inventory management ERP

5. Billing

6. Hospitality

7. Insurance

#PROJECT 5

Sequence diagram and Use case diagram for

1. Payroll software

2. School management system

3. eCommerce software – online shopping

4. Inventory management ERP

5. Billing

6. Hospitality

7. Insurance

Other services:

Professional resume building, Resume Marketing

Interview guidelines, and mock sessions

GD skills

CERTIFICATE COURSE IN R PROGRAMMING
Syllabus

Module 1: Introduction to R: R as a calculator, statistical software and a programming language,

R preliminaries, getting help, data inputting methods (direct and importing from other spread

sheet applications like Excel), data accessing, and indexing, Graphics in R, built in functions,

saving, storing and retrieving work.

(10 Hours)

Module 2: Descriptive statistics:, diagrammatic representation of univariate and bivariate data

(box plots, stem and leaf diagrams, bar plots, pie diagram, scatter plots), measures of central

tendency (mean, median and mode), partition values, measures of dispersion (range, standard

deviation, mean deviation and inter quartile range), summaries of a numerical data, skewness

and kurtosis, random sampling with and without replacement, Correlation and regression.   **(10 Hours)**

Module 3: Probability Distributions: R as a set of statistical tables- cumulative distribution,

probability density function, quantile function, and simulate from the distribution, plotting

probability curves for standard distributions

(10 Hours)

Module 4: Statistical Inference- Large and small sample tests, Chi-square tests, plots to check normality, Anova(one- way and two-way).

Certified Finance Professional + Internship

Syllabus:

❖ **Accounting**
  o Fundamentals of Accounting
  o Financial Statements of a Company
  o Single Entry System
  o Bank Reconciliation Statement
  o Accounting vs Taxation

- o Accounting at Computerized Environment
- ❖ **International Financial Reporting Standards (IFRS)**
  - o Introduction
  - o Application and Analysis of IFRS
  - o Asset Accounting
  - o Group Accounting
  - o Accounting Standard vs IFRS
  - o US GAAP vs IFRS
- ❖ **Auditing**
  - o Scope and types of Audit
  - o Audit Planning and Audit Report
  - o Internal Control System
  - o Audit Risks and Analytical Procedures
- ❖ **Companies Act, 2013**
  - o Introduction
  - o Shares and Share Capital
  - o Debt Instruments
  - o Administration and Meetings
  - o Introduction to MCA filings

- ❖ **Direct Tax & Indirect Tax**
  - o Basics of Income Tax and Goods and Service Tax
  - o Computation of Tax
  - o Assessment
  - o Introduction to Return Filings
- ❖ **Practical Training**
  - o Manual Accounting
  - o Training on Preparation of Invoices, Documentation, Cheques and other business documents

   o Internal and External Business Communications

   o MS Office, Tally and Peachtree

 ❖ **Ethical Codes of an Accountant**

   o Fundamental Principles & Case Studies

Certification: - Successful students shall be issued with the following certificates.

1. Program Certificate- From Outlook Eazy Link Academy.
2. Internship Certificate: - From the employer.
3. Online Certification for Tally, Peachtree –Optional by paying the required fees for the same.

Data Analytics & Visualisation

Objective of the Program

The main goal of our Programs are to provide tools and techniques to learn corporate practices & reinforcing decision-making skill. These programs will help to improve the practical knowledge of the aspirant and help to analyze data, create models, and generate insights. It will further train you in extending your skills to industry strength analytics using the Microsoft Excel, Power BI, Tableau and Foundation of R and Python. Training is hands-on, with participants working along with instructors, learning within the context of real world, practical examples.

Learning Path

- Business Models
- Data Analysis
- Advanced Excel Tools for Analytics
- Data Retrieval and Consolidation
- Model Building and Automation
- Data visualisation using Power BI and Tableau
- Data Preparation

- Managing Metadata
- Data Blending
- Dashboards & Stories
- Application of R and Python in data Science

Technical Specifications

The entire participant should have laptop with MS Office

We will Provide All the Analytics software and Data Support.

DELF – DIPLÔME D'ÉTUDES EN LANGUE FRANÇAIS (A1-Diploma in French)

DELF is a diploma awarded by the French Ministry of Education to prove the French - language Skills of non-French candidates.

There are six independent Diplomas: A1, A2, B1, B2, C1 & C2

Levels Evaluated: A1, A2, B1 & B2

Course Classifications

1) DELF tout Public   : for adults
2) DELF Prim   : 7 to 12 years old
3) DELF Junior/Scolaire : 12 to 17 years old/ for adults

DELF A1

This level recognizes basic knowledge. It is the most basic level at which a language is used, called discovery stage. At this stage, the learner can interact in a simple way: he or she can speak about him/herself and his/her immediate environment.

Type of tests : A1	Duration	Marks out of

Listening Comprehension questionnaires dealing with three or four very short recordings on everyday life (played twice) max: 3 min	Approximately 20 minutes	/25
Reading Comprehension questionnaires Dealing with four or five written documents on everyday life.	30 min	/25

Writing
Two part test :
   - Filling a form
   - Writing simple sentences
    (post card, letter, message
   Stories) on everyday topics
	30 min	/25

Speaking
Three part test :
  - Guided Conversation
  - Exchanging Informations
  - Role play
	5 to 7 min
	 Preparation: 10 min
		/25

Examination:

Place   : Alliance Française, Trivandrum / Ernakulam

Diploma in Goods & Services Tax Practice

1. Practical Accounting- Day Book- preparation- ledger posting, balancing, preparation of trial balance, schedules for purchases, sales, debtors, creditors and other accounts- valuation of closing stock- preparation of final accounts such as Trading account, Profit and Loss Account and Balance Sheet- other necessary statements to be produced before the tax authorities and management
2. Cash Book- Subsidiary Book- Ledger system- Preparation of Cash book- Purchase Day Book, Sales Day Book, Returns Book, Bills Receivables Book, Bills Payables Book, Journal proper. Preparation of General ledger- Debtors ledger, Creditors ledger, Purchase register, sales register, cheque receivable register, cheque payable register. Preparation of Schedules- Trial Balance, Computation of stock, depreciation, bad debts, discounts, etc. Preparation of final accounts
3. Preparation of Bank Reconciliation Statement
4. Study of different types of accounting errors- Errors of omission, commission, principles and clerical errors- rectification entries for correction of errors
5. Preparation of Project Report for obtaining overdraft from banks
6. KGST Act 1963 & Rules
7. GST with section wise analysis
8. Income Tax Act and Rules
9. ESI- registration, calculation, contribution, filing- salary settlement
10. PF- registration, rates of contribution and calculation, PF statement- filing details, salary statement, TDS, etc

Microsoft Excel 2019

Module 1: Manage worksheets and workbooks

Import data into workbooks: Import data from .txt files, Import data from .csv files.

Navigate within workbooks: Search for data within a workbook, Navigate to named cells,

ranges, or workbook elements, Insert and remove hyperlinks.

Format worksheets and workbook: Modify page setup, Adjust row height and column width,

Customize headers and footers.

Customize options and views: Customize the Quick Access toolbar, Display and modify

workbook content in different views, Freeze worksheet rows and columns, Change window

views, Modify basic workbook properties, Display formulas.

Configure content for collaboration: Set a print area, save workbooks in alternative file

formats, Configure print settings, Inspect workbooks for issues.

Module 2: Manage data cells and ranges

Manipulate data in worksheets: Paste data by using special paste options, Fill cells by using

Auto Fill, Insert and delete multiple columns or rows, Insert and delete cells.

Format cells and ranges: Merge and unmerge cells, Modify cell alignment, orientation, and

indentation, Format cells by using Format Painter, Wrap text within cells, Apply number

formats, Apply cell formats from the Format Cells dialog box, Apply cell styles, Clear cell

formatting.

Define and reference named ranges: Define a named range, Name a table.

Summarize data visually: Insert Sparkline, Apply built-in conditional formatting, Remove

conditional formatting.

Module 3: Manage tables and table data

Create and format tables: Create Excel tables from cell ranges, Apply table styles, Convert

tables to cell ranges.

Modify tables: Add or remove table rows and columns, Configure table style options, Insert and

configure total rows.

Filter and sort table data: Filter records, Sort data by multiple columns.

Module 4: Perform operations by using formulas and functions

Insert references: Insert relative, absolute, and mixed references, Reference named ranges and

named tables in formulas.

Calculate and transform data: Perform calculations by using the AVERAGE() , MAX(),

MIN(), and SUM() functions, Count cells by using the COUNT(), COUNTA(), and

COUNTBLANK() functions, Perform conditional operations by using the IF() function.

Format and modify text: Format text by using RIGHT(), LEFT(), and MID() functions, Format

text by using UPPER(), LOWER(), and LEN() functions, Format text by using the CONCAT()

and TEXTJOIN() functions.

Module 5: Manage charts

Create charts: Create charts, Create chart sheets.

Modify charts: Add data series to charts, Switch between rows and columns in source data, Add

and modify chart elements

Format charts: Apply chart layouts, Apply chart styles, Add alternative text to charts for

accessibility

Python Programming

Introduction, Language, Statements & Programming Concepts

❑ Introduction to Python

❑ Variables, Expressions   and   Statements

❑ Operators and Operands

❑ Order of precedence, String Operations

❑ Control statements

❑ Boolean Expressions and logical operators

❑ Conditional and alternative executions

❑ Nested Conditional

❑ Recursion. Iteration - Multiple Assignment

❑ The While Statement

❑ Encapsulation and generalization

❑ Local Variables

❑ Environment Variables and Security

❑ Regular Expressions and Pattern Matching

Functions

❏ Calling functions

❏ Type conversion and coercion

❏ Composition of functions

❏ Mathematical functions

❏ User-defined Functions

❏ Parameters and Arguments

❏ Anonymous functions - Lambda

Multithreading

Data Structures

❏ Strings and Lists – string traversal and comparison with List operations

❏ Set

❏ Tuples and dictionaries – Operations and Examples.

OO Paradigm using Python

❏ Class, objects, members

❏ Class attributes vs Instance attributes

❏ Data hiding

❏ Inheritance

API's

❏ Introduction to API

❏ API requests, type of requests & status codes

❏ Endpoints, Query Parameters

❏ Working with JSON data

❏ Content type & response headers

Graphics Programming

❏ Introduction to Programming vector graphics using Turtle

❏Creating basic drawings

❏ Moving turtle, colors, Filling

Python - GUI Programming (Tkinter)

❏TKinter Widgets & Standard attributes

❏ Geometry Management

Introduction to Database Connectivity using Python

❏ Database Handling and Connectivity using Python &MySql database

❏Creating tables, and manipulating data.

❏ Basic queries and aggregate functions

❏Filtering , Sorting & Joins

Solar Energy: Photovoltaic (PV) Technologies

Module 1: Introduction to Solar Energy(5 hrs)Working Principle of a Semiconductor based Solar Cell-Si solar cell arrays-Modules

Module 2: Solar cell characterization (5hrs)J-V Measurement-EQE Measurement -Reflectance - Transmittance Measurement -Lifetime Measurement

Module 3: Thin film solar cells(5 hrs) Second generation solar cells-cadmium telluride(CdTe),copper indium gallium diselenide(CIGS), andamorphous thin-film silicon(a-Si, TF-Si).

Module 4: Polymer solar cells(5hrs)Organic solar cells and perovskite solar cells-Theory –working-Advantages over other solar cells.

Module 5: Photo voltaic systmes(10hrs) PV systems-Concepts-Components-Application and design

Training Skill Development

SYLLABUS

 Duration: 1 year   Hours: 40

Objectives:

- To enable the students capacity for provide training.
- To develop presentation skills among students
- To enhance the social awareness and crisis management skill among students

Module 1: Introduction to training

Overview of training- concept-, types of training- professional and non-professional-, core skills of training, phases of training.(6 hours)

Module 2: communication in training.

Define communication-, process of communication, types of communication- verbal and non-verbal, functions of communication. Listening skills in communication. (8 hours)

Module 3: training presentation

Structuring presentation - module and content, methods of presentations- Lecture, GD, activity method, virtual methods- audio-visual aids, on- line sessions. Process of evaluation. (14 hours)

Module 4: Activity/ training of trainers

Working through presentation skills- module preparation- presentation techniques for different groups (Employees, professionals, students, parents, geriatric, socially psychologically challenged group), field visits (12 hours)

Android Programming

Course Outline:

Session 1-Getting Started

1. IntroductionAndroid

    • Overview

    • Versions andFeatures

2. Environment Setup

    • SetupJDK

    • SetupSDK

    • Installation of AndroidStudio

    • Emulator

3. Android Architecture

    • Linux Kernel

    • Libraries

    • AndroidRuntime

    • Application Framework

    • Applications

4. Application Components

    • Activities

- Services

- Content Providers

- Broadcast Receivers

Session 2-Working with the User Interface

5. Create Android Application

- Hello WorldApplication

- Android manifest

- XML

- String

- Resources

6. UIControls

- Widgets

- Text

- Layouts etc.

7. UILayouts

- LinearLayout

- RelativeLayout

- AbsoluteLayout

- TableLayout

- Frame Layout

- Listview

- Gridview

8. Fragments

9. Intents

10. Styles and Themes 11.EventHandling

Session 3-Sample Applications

12. BasicExamples

- Login Page

- Calculator
- Notification
- Sending SMS and Email, PhoneCalls
- Bluetooth
- CameraApp
- Location BasedServices

☐ GoogleMap

- Media

☐ Images

☐ Video

☐ Audio

Session 4-Database Connectivity

13. DataStorage

- Shared Preferences
- Android File System
- Internalstorage
- External storage
- SQLite
- Introducing SQLite
- SQLite Open Helper and creating adatabase
- Opening and closing adatabase
- Working with cursors Inserts, updates, anddeletes

Session 5-Firebase

☐ Introduction to Firebase

- Firebase Overview
- Creating Firebase Project

- • Implementing the firebase API in Android Application

☐ Firebase Authentication

- • Design a login and registration form

- • Creating Users

- • Authenticating users

☐ Firebase Database

- • Realtime Database

- • Cloud Firestore

- • Storing and Retrieving data

☐ Firebase Storage

- • Storing Multimedia data in firebase

- • Retrieving the data

- • Modifying the UI based on retrieved data

CERTIFICATE COURSE IN GIS AND REMOTE SENSING

Theory Section

- • Introduction to GIS   -   6 Hrs.

  o Concept of GIS
  o Data models
  o Projection
  o GPS concept

- • Cartography and GIS   -   6 Hrs.

  o Introduction to Map
  o Types of Maps
  o Map & Globe
  o Map Scale & Layout

- • Remote Sensing   -   6 Hrs.

  o Basics of Remote Sensing
  o Photogrammetry and Cartography
  o Digital Image Processing
  o Satellite Image

- •Applications of GIS   -3 Hrs.

- • Introduction to GIS Software -3 Hrs.

- •Theory Exam (Maximum Score 100)-2 Hrs.

Total Hours - **26 Hrs.**

Practical Section (Software Training)

- QGIS - 20 Hrs.

  o Digitizing and Editing of Spatial Data
  o Data base creation and Management
  o Spatial Analysis of Data
  o Map Preparation
  o Arc GIS (Hands on training and demonstration)
  o Group project- 10 hrs

- GPS Training (Hand Held) - 2 Hrs.

Individual Presentation -2 Hrs. **Total Practical hours: 34**

Certificate Course in Statistical Analysis in Research using SPSS

Syllabus

Duration: 80 Hours

Unit 1: Developing the familiarity with SPSS Processer

Entering data in SPSS editor. Solving the compatibility issues with different types of file. Inserting and defining variables and cases. Managing fonts and labels. Data screening and cleaning. Missing Value Analysis. Sorting, Transposing, Restructuring, Splitting, and Merging. Compute & Recode functions. Visual Binning & Optimal Binning. Research with SPSS (random number generation).

5Hrs

Unit 2: Working with descriptive statistics

Frequency tables, Using frequency tables for analyzing qualitative data, Explore, Graphical representation of statistical data: histogram (simple vs. clustered), boxplot, line charts, scattorplot (simple, grouped, matrix, drop-line), P-P plots, Q-Q plots, Addressing conditionalities and errors, computing standard scores using SPSS, reporting the descriptive output in APA format. **5Hrs**

Unit 3: Hypothesis Testing

Sample & Population, concept of confidence interval, Testing normality assumption in SPSS, Testing for Skewness and Kurtosis, Kolmogorov–Smirnov

test, Test for outliers: Mahalanobis Test, Dealing with the non-normal data, testing for homoscedasticity (Levene's test) and multicollinearity.

10Hrs

Unit 4: Testing the differences between group means

t – test (one sample, independent- sample, paired sample), ANOVA-GLM 1 (one way), Post-hoc analysis, Reporting the output in APA format.   **10 Hrs**

Unit 5: Correlational Analysis

Data entry for correlational analysis, Choice of a suitable correlational coefficient: non-parametric correlation (Kendall's tau), Parametric correlation (Pearson's, Spearman's), Partial and Distance Correlation.   **5Hrs**

Unit 6: Regression (Linear & Multiple)

The method of Least Squares, Linear modeling, assessing the goodness of fit, simple regression, Multiple regression (sum of squares, R and R2, hierarchical, step-wise), Choosing a method based on your research objectives, checking the accuracy of regression model.   **15 Hrs**

Unit 7: Logistic regression,

Choosing method (Enter, forward, backward) & covariates, choosing contrast and reference (indicator, Helmert and others), predicted values: probabilities & group membership, Influence statistics: Cook, Leverage values, DfBetas, Residuals (unstandardized, logit, studentized, standardized, devaince), Statics and plot: classification, Hosmer-Lemeshow goodness-of-fit, performing bootstrap, Choosing the right block, interpreting -2loglikelihood, Omnibus test, interpreting contingence and classification table, interpreting Wald statistics and odd ratios. Reporting the output in APA format   **10Hrs**

Unit 8: Non-parametric tests

When to use, Assumptions, Comparing two independent conditions (Wilcoxon rank-sum test, Mann-Whitney test), Several independent groups (Kruskal- Wallis test), Comparing two related conditions (Wilcoxon signed-rank test), Several related groups (Friedman's anova), Post-hoc analysis in non-parametric analysis. Categorical testing: Pearson's Chi-square test, Fisher's exact

test, Likelihood ratio, Yates' correction, Loglinear Analysis. Reporting the output in APA format. **10 Hrs**

Unit 9: Factor Analysis

Theoretical foundations of factor analysis, Exploratory and Confirmatory factor analysis, testing data sufficiency for EFA & CFA, Principal component Analysis, Factor rotation, factor extraction, using factor analysis for test construction, Interpreting the SPSS output: KMO & Bartlett's test, initial solutions, correlation matrix, anti-image, explaining the total variance, communalities, eigen-values, scree plot, rotated component matrix, component transformation matrix, factor naming.

10 Hrs

Lab Work & Project:

All the units will include discussion on theoretical concepts followed by practical SPSS demonstration on real/simulated data. Learners are welcome to bring and discuss their actual problems related to quantitative analysis. Our every learner receives personal attentions and we endeavour to equip every learner to develop a sense of professional competency in quantitative data analysis using SPSS.

Certificate Course on Chemical Analysis

Certificate Course on Chemical Analysis (Draft syllabus) Hours- 40 hrs

Unit -1

Errors and Approximations, Basic statistics, Statistical process control-Calibration methods-internal & external

Unit-2

General methods of Wet chemical analysis- principles- Qualitative and Quantitative

Parameters and principles of Water analysis, Soil analysis, Soap analysis and other Consumer goods

pH meters, Conductivity meters, Refractive index-principles and practical approaches

Unit-3

General Introduction To Spectroscopy – Define Spectroscopy, Types of spectroscopy, Absorption spectrum, Emission spectra, Wave length and Wave number, Electromagnetic radiation, Visible spectrum, Stokes's shift, Hypochromicity, transmittance.

Unit-4

Basic principles and instrumentation- Introduction – Infrared Spectroscopy, Flame Photometry, Atomic Absorption Spectroscopy and Mass Spectrometry

Unit-5

Introduction to Chromatography: Classification – Theory – distribution coefficient, rate of travel, retention time, retention volume, adjusted retention volume, specific retention volume, column capacity, separation number, peak capacity, shapes of chromatic peak, column efficiency, resolution, optimization of column performance, Chromatogram, Void volume.

Unit-6

Thin Layer Chromatography: Stationary phase, mobile phase, sample application, development techniques – evaluation and documentation, advantages and disadvantages of TLC.

Gas Chromatography: Principle, carrier gas, stationery phase, instrumentation, sample injection, column detectors (TCD, FID, ECD), effect of temperature on retention, qualitative and quantitative analysis.

High Performance Liquid Chromatography: Principle, instrumentation, column, sample injection, detectors (absorbance, refractive index, electrochemical), mobile phase selection, ion pair chromatography

Unit-7

Practical-

water analysis, soil analysis, Quality control of plant extracts (% water, % LOI, refractive index,% oil content etc), Identification of traces by IR & UV spectroscopy, Gas chromatograph-separation and quantitative determination, Flame photometer and AAS- identification and quantification of metals in soil.

HACCP LEVEL 3 (APPROVED BY HABC)

Unit 1: The Principles of HACCP for Food Manufacturing

Unit no:	Y/600/2382
Level:	3
Credit:	3
GLH:	20

Learning Outcome	Assessment Criteria
The learner will:	*The learner can:*

1. Understand the importance of HACCP based food safety management procedures	1.1	Outline the need for HACCP based food safety management procedures	
	1.2	Describe the HACCP approach to food safety procedures	
	1.3	Summarise legislation relating to HACCP	
2. Understand the preliminary processes for HACCP based procedures	2.1	Explain the requirements of a HACCP team	
	2.2	Outline the pre-requisites for HACCP	
	2.3	Describe food production processes including use of end product	
	2.4	Use process flow diagrams in the development of HACCP based food safety management procedures	
3. Understand how to develop HACCP based food safety management procedures	3.1	Identify hazards and risks in the production process	
	3.2	Determine critical control points	
	3.3	Establish critical limits	
4. Understand how to implement HACCP based food safety management procedures	4.1	Establish and implement monitoring procedures at critical control points	
	4.2	Describe corrective actions	
5. Understand how to evaluate HACCP based procedures	5.1	Describe documentation and record keeping procedures	
	5.2	Outline the verification and review of procedures	

This section of the specification covers areas that will be tested in the HABC assessment. Each of the bullet points below expand on the assessment criteria defined in the above unit and are the minimum standard HABC expects learners to achieve.

LO1 Understand the importance of HACCP based food safety management procedures

- The need for HACCP based food safety management procedures:
    - The reasons behind the development of HACCP and outline its origins
    - The need for a systematic approach for food safety
    - Holistic approach to managing safe food
    - How the implementation of an effective HACCP plan may contribute towards a 'due diligence' defence

- The HACCP approach to food safety procedures:
    - The 7 principles of HACCP as stated in *Codex Alimentarius*
    - The 12 logic steps to HACCP

- Legislation relating to HACCP:
    - How HACCP legislation is enforced and the potential consequences of non- compliance
    - The role and responsibilities of management and employees within HACCP
    - The relevance of codes of practice and industry guides

LO2 Understand the preliminary processes for HACCP based procedures

- The requirements of a HACCP team:
    - Adequate training and experience of team members
    - Roles held within the organisation
    - Allocating roles and responsibilities within the HACCP team
    - When ad hoc team members and external consultants or experts may be required

- The pre-requisites for HACCP:
    - Management commitment and provision of adequate resources
    - The importance of developing and implementing effective policies and procedures prior to the development of a HACCP based food safety management system
    - How to decide if pre-requisite programmes represent an adequate basis for HACCP development
    - Type of documentation required

- Food production processes including use of end product:
  - Scope
  - Sources of information
  - Production process from purchase to dispatch
  - End of product testing
  - Identification of 'at risk' groups
  - Intended use of the product
  - Intrinsic properties of different products and their relationship to microbial growth and survival

- Process flow diagrams in the development of HACCP based food safety management procedures:
  - The purpose and use of flow diagrams
  - Be able to construct a process flow diagram
  - The importance of confirming a process flow diagram

LO3 Understand how to develop HACCP based food safety management procedures

- Hazards and risks in the production process
  - Microbiological, chemical, physical and allergenic hazards
  - Examples of each type of hazard associated with processes from purchase to dispatch of finished product including
    - Delivery of raw materials
    - Storage of raw materials
    - Handling
    - Preparation
    - Processing
    - Cooling
    - Post-process treatments
    - Packing
    - Finished product storage
    - Transportation
  - Significant hazards using a risk assessment approach
  - Where to obtain information, advice and support for hazard identification
  - Assessing the applicability of the information and advice obtained

- Critical control points:
  - The purpose and benefits of using decision trees

- o The Codex decision tree in recognising critical control points
- o Obtain information, advice and support for identifying critical control points
- o The importance of validating information and advice obtained

- Critical limits:
  - o The advantages and disadvantages of common parameters used when establishing critical limits, such as:
    - Temperature
    - Time
    - pH
    - Water content
  - o Why critical limits need to be absolute, unambiguous and measurable
  - o The term 'target level' and the benefits to a food manufacturing business of identifying target levels
  - o Where to obtain information, advice and support for identifying critical limits and describe the importance of validating information and advice obtained
  - o Examples of suitable critical limits for a range of common food manufacturing processes

LO4 Understand how to implement HACCP based food safety management procedures

- Monitoring procedures at critical control points:
  - o The purpose of monitoring
  - o Benefits and drawbacks of both continuous and batch monitoring
  - o Examples of suitable monitoring procedures and parameters for a variety of critical control points within the food manufacturing process
  - o Considerations to be made when determining the frequency of monitoring
  - o The importance of calibrating and testing monitoring equipment
  - o The importance of consistent monitoring
  - o The importance of training personnel with regard to monitoring
  - o Accurately recording at critical control points
  - o The importance of monitoring personnel
  - o Procedures and verification of monitoring procedures

- Corrective actions
  - o The need for corrective actions if critical limits are not

achieved or are exceeded
- o The types of corrective action
- o The importance of establishing both process and product corrective actions
- o Examples of a variety of corrective actions which may be used within food manufacturing, including treatment of incorrectly processed product
- o The importance of allocating responsibilities for corrective actions
- o The importance of increased monitoring after control has been regained
- o The importance of accurate record keeping
- o Suitable reporting procedures regarding corrective actions at critical control points

LO5 Understand how to evaluate HACCP based procedures

- Documentation and record keeping procedures
  - o The importance of documentation and record keeping
  - o Examples of suitable documentation which may be used in food manufacturing
  - o The importance of suitable storage of completed documentation and monitoring records
  - o Construct an outline HACCP plan
- The verification and review of procedures:
  - o The importance of verification of the HACCP system and of the initial validation of the HACCP plan
  - o Information that will be required to verify and validate the HACCP system and plan
  - o The approaches to verification and discuss the value of end product testing
  - o The reasons for and times when independent experts may be required with regard to verification and validation, including the role of independent audits and inspections
  - o Factors which affect the frequency of verification and outline the requirements for verification reports
  - o The need to review a HACCP system

Journalism

മാധ്യമമലയാളം

(സിലബസ്)

I	**മലയാളം കമ്പ്യൂട്ടിംഗ്**	20 മണിക്കൂർ

മലയാളം/ഹിന്ദി, ഇംഗ്ലീഷ് ടൈപ്പിംഗ്

പേജ്മേക്കർ, മലയാളം ഇൻപുട് ഉപകരണങ്ങൾ, എഡിറ്റിംഗ് ഉപകരണങ്ങൾ, ബ്ലോഗ്, വ്ലോഗ്, യു ട്യൂബ് ചാനൽ, വിക്കിസംരംഭങ്ങൾ...

II	**മാധ്യമപ്രവർത്തനത്തിന്റെ അടിസ്ഥാനതത്വങ്ങൾ**	5 മണിക്കൂർ

മാധ്യമചരിത്രം

ഇന്ത്യൻ മാധ്യമപ്രവർത്തനം

മലയാളമാധ്യമപ്രവർത്തനം

III	**വാർത്താരചനയുടെ തത്വങ്ങൾ**	5 മണിക്കൂർ
IV	**ഭാഷാസംശോധനം**	10 മണിക്കൂർ

മലയാളം സ്റ്റൈൽബുക്

തെറ്റില്ലാത്ത മലയാളം

(ക്ലാസ് സമയം : സാധാരണനിലയിൽ 3.30 മുതൽ 4.30 വരെ. രണ്ടു ശനിയാഴ്ചകളിൽ രാവിലെ ക്ലാസ്സുകൾ ഉണ്ടായിരിക്കും. ചുരുങ്ങിയത് 40 മണിക്കൂർ ക്ലാസ്സ്. പ്രായോഗികപരിശീലനത്തിന് പ്രാധാന്യം കൊടുത്തുകൊണ്ടാണ് ക്ലാസ് രൂപകല്പന ചെയ്തിരിക്കുന്നത്.)

ഫീസ് : 2,500 രൂപ.

Malayalam for Media
(syllabus)

I   **Malayalam Computing**
Malayalam/Hindi, English Typing, Malayalam input tools, PageMaker, Blog, Vlog, You Tube Channel, Wiki, Editing tools

II   **Fundamentals of Journalism**
Media history, Indian journalism, Journalism in Kerala

III   **Fundamentals of News story writting**

IV   **Language Editing**
Malayalam Style sheet, Thettillatha Malayalam (Text book).

Skill training for development communication

Advanced Certificate in Library Automation and Digital Archiving

Syllabus

Duration of the course: 6 months (4 credit – 60 hours)

Objective of the course:

Objective of the course is to provide an understanding following aspects:

- Theoretic base of library automation
- Concepts of digital library, Different digital library project,
- Automation of house keeping operations with special reference to open source library software Koha.
- Internet technology, networking techniques and devices and network security
- Electronic information resources available in world wide web.
- Ethical and legal issues of cyber space and information literacy
- Processes methods and equipment used for digitalizing
- Developing digital library using open source software: Greenstone
- Developing institutional repository based on D-Space

Target group: Library and information professionals and Students

Eligibility: CLIS, BLISc OR MLISc degree.

Students those who enrolled in these courses

Course pre-requisite: Learner should have

- Basic knowledge of library functions and services.
- **B**asic knowledge of computers and ICT tools

Learning Outcomes:

After going through this course the learner will get thorough understanding in automated library system, automation process and use of open source integrated library system software koha. They will also get in depth knowledge and capable do digitalization and learn to use open source software GSDL (Greenstone Digital Library software) for developing digital libraries, archives and repositories. Learner will get an understanding of legal and ethical issues of IPR and cyber space. Learner will get an awareness of different types of Electronic resources available in World Wide Web.

<div align="center">**Advanced Certificate in**</div>

<div align="center">**Library Automation and Digital Archive**</div>

<div align="center">**Paper -I: Library Automation**</div>

Unit 1: Introduction to operating systems

- Linux, Ubuntu, XUbuntu, Linux Lite, Linux Mint,
- Fedora, Debian
- SOLUS, React OS, ChromeOS

Unit 2: Library Automation

- Need and Purpose of Library Automation.
- Automation in Library House Keeping Operations.
- Automated Library Services.

- Broad overview of Library automation softwares. - CDS/ISIS,
- E-grandhalaya, Soul, NewGenLib, Why Koha

Unit -3 Koha

- Setting Library,
- Parameters in Koha
- Acquisition module,

- Cataloguing module
- Circulation Module
- Serials Control Module.
- Generating Barcode,

- Import Patron,
- Taking Reports and Indexes, Backup.
- Installation of Koha

Paper II: Library networking and web technology Unit -1
Internet Basics and Networking techniques and devices

- Internet Basics
- Client server computing
- Networking in library
- Networking Techniques, media and devices:

- Switching techniques-circuit switching, Packet switching, cell switching

- Network media-UTP, Optical fiber, Ethernet, network Interface cards, Hubs, Routers, Gateway, Modem.

- Network protocols: Definition, Concept, Types-TCP/IP, OSI. Other Protocols: SMTP, Telnet, FTP, HTTP, Z39.50, (Harvesting protocols-OAI-PMH, Open Standards)

- Data network and network security –Authentication, Firewalls, Virus, Spy ware

Unit 2: Information Literacy

- Library networks the international level – OCLC- Online Computer Library Center, JANET- Joint Academy Network

- National Level-UGC-Digital library with reference to NLIST INFONET, E-Shodh Sindhu

- **Electronic resources -**Meta resources, Information resources by form

- Information resources by subjects- Science, Social Science, Humanities.

- Databases, Datasets and collections.
- Legal and ethical issues of cyber space
- Plagiarism

Paper III – Digital Achieving Unit 1:

Digital Library

- Digital Library Concepts- History and current scenario.
- Different digital library projects.
- Broad overview of digital library software.
- Intellectual property right – Ethical and legal issues.

Unit 2: Components and digital formats in Digital Library.

- Formats and media types in digital library-OCR, PDF, JPJ, TIFF, Audio, Video files

- Devices – Scanners, Camera
- Converting Software
- Converting to matching format

Unit 3: Create a simple collection from available digital documents.

Unit 4: Creation of an archive

- Enrich, Formatting, Designing and Collection building

Unit 5: Configuration and digital publishing

- Designing, Formatting, Export to CD

Unit 6: Developing institutional repository in D space

Certificate Program in Tally

Introduction to biomedical imaging techniques

Module 1: Projection X-ray Imaging (5hrs)

Radiation, Electrons and ionization, Equipment, examples and adverse effects, Clinical applications of X-ray imaging, Mammography, Abdominal X-ray scans, Detecting and diagnosing bone fractures.

Module 2: Computed Tomography(CT) Imaging(5hrs)

Terminology and Equipments, Sinograms, Image building exercise, Image reconstruction, Artifacts, Pros & Cons, Clinical applications of CT, Cerebral scans ,Pulmonary disease, Abdominal imaging.

Module 3: Ultra sound Imaging(5 hrs)

System architecture, Components and terminology, Refraction and Sound speed, Image formation and typical uses, Artifacts , Advanced methods, Safety and Bioeffects in Ultrasonic imaging. Clinical applications of Ultra sound, Obstetrics and Gynecology, Cardiac disease etc.

Module 4: Magnetic resonance Imaging(10 hrs)

System overview, Magnet properties and precession, Coils, flipping protons, larmor frequency , Farady induction, Obtaining contrast,Examples, Artifacts, Pros & Cons. Clinical applications of MRI, Brain, Musculoskeletal system, Cardiac system.

Module 5: Other Imaging techniques(5 hrs)

Nuclear medicin functional imaging techniques positron emission tomography (PET) and Single-photon emission computed tomography (SPECT) and endoscopy. Various clinical applications.

Course also includes 10 hrs of medical imaging lab visit to familiarize with various imaging techniques.

Programming in Matlab

MATCC01 : Programming in Matlab

No.of Contatct hours/week:5

Number of Credits :0

UNIT I: Introduction to Matlab(14hrs)

Matlab Basics, Solving problems with Matlab, Basic Plotting and Graphics.

UNIT II: Functions in Matlab(18hrs)

Buit-in Matlab functions, Mathematics in Matlab, manipulating Matlab matrices, user-

defined functions, user controlled input/output, logical functions.

UNIT III: Structures in Matlab(18hrs)

Selection Structures, repetition structures, advanced graphics, tool boxes –signal and

image processing, creationg GUI.

CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA

References

1. MATLAB: A Practical Introduction to Programming and Problem Solving, Stormy Attaway, Elsevier,2009

2. Introduction to MATLAB, Delores Etter, 4th Edition Pearson,2018

3. MATLAB: An introduction with Applications, Amos Gilat, 6thEdition,Wiley

4. Introduction to MATLAB for Engineers and Scientists, Sandeep Nagar, Apress.

Computer Programming – MATLAB, J. Michael Fitzpatrick, AkosLedeczi, FitzeLLC,2015