# LBS CENTRE FOR SCIENCE AND TECHNOLOGY

**(A Government of Kerala Undertaking)**
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B4/ 2123/20224 29/08/2025

To

The Managing Director
X-treem Multimedia Technical Services Pvt Ltd

Sir,

Sub: Approval and feedback on the syllabus submitted by Xtreem Multimedia-Reg.

Ref: 1) Syllabus submitted for review via email dated 26/08/2025

Vide ref we have received the syllabus of newly designed courses by your office. The syllabuses were submitted for review to expert members in the respective domain. The syllabus was revised as per the suggestions obtained. Now we are forwarding the syllabus of the 6 newly approved courses as shown below.

1. DIPLOMA IN PRIMARY TEACHER TRAINING COURSE
2. CERTIFICATE COURSE ON ADVANCED EXCEL
3. CERTIFICATE COURSE ON AI TOOLS FOR TEACHERS
4. CERTIFICATE COURSE ON DATA SCIENCE & MACHINE LEARNING
5. CERTIFICATE COURSE ON DIGITAL MARKETING
6. CERTIFICATE COURSE ON FULL STACK DEVELOPMENT

Dr.M. Abdul Rahiman
**DIRECTOR**

Enclosed: Approved syllabus

**LBS Centre for Science and Technology**

**(Offline Course)**

| | |
|---|---|
| **CourseTitle** | **Diploma in Primary Teacher Training Course** |
| **Abbreviation of Course Title** | **DPTTC** |
| **Duration of the course in Hours** | **650 Hours** |
| **Duration of the course in Month** | **12 Months** |
| **Course Fee** | **15,000** |
| **Eligibility** | **Plus Two** |

**About the course**

"A child's education is like a canvas, where every lesson adds a stroke of brilliance". Education helps people to develop skills, knowledge and character traits that can help them to lead better lives. Primary education plays a vital role in a child's development and in society as a whole. It helps children to develop the skills and social- emotional competencies they need to succeed in school and in life. This course aims to prepare teachers with the skills and knowledge to help child develop socially, emotionally and academically. It covers the latest teaching methods and classroom practices. Teachers learn how to understand children's behavior and psychology and help children to socialize and co-operate with each other. They learn how to create an interactive classroom atmosphere and will learn to teach different subjects to primary class students. Candidates are taught essential skills on how to teach students, plan lessons, assign homework and grade papers among other things. The training course generally includes several new-age teaching techniques and computer education that will make the child face the 21st century classroom with confidence.

**OBJECTIVES:**

* To impart teaching skills in a scientific manner that enables potential teachers to transform themselves into expert educators.

* To improve the teaching-learning process which is needed for a holistic development of the student.

* To prepare the potential teachers to handle the modern age challenges in the field of education and classroom teaching.

**Scheme of study**

| Semester | SUBJECT | Theory (hour) | Practical (hour) | Total (hour) |
|---|---|---|---|---|
| DPTTC 101 Sem 1 | Educational Psychology | 50 | 50 | 100 |
| DPTTC 102 Sem 1 | Health and Physical Education | 60 | 40 | 100 |
| DPTTC 103 Sem 1 | Communication Skills | 50 | 50 | 100 |
| DPTTC 201 Sem 2 | School Organization and Management | 60 | 40 | 100 |
| DPTTC 202 Sem 2 | Teaching Methodology | 50 | 50 | 100 |
| DPTTC 203 Sem 2 | Computer Technology | 40 | 60 | 100 |
| DPTTC 204 Sem 2 | Class Room Teaching - Practical | 10 | 40 | 50 |
| | TOTAL | 320 | 330 | **650** |

## Paper 1: Educational Psychology

### Unit 1: Psychology

- Meaning and definition-Branches of Psychology-Approaches of Psychology-Child Psychology-Educational Psychology.

### Unit2: Growth and Development

- Meaning of Growth and Development-Principles of Development-Stages of Development-Factors effecting Development

### Unit3: Aspects of Development

- Physical and Motor Development-Emotional Development-Social Development-Cognitive Development-Morale Development-Language Development-Role of Parents &Teachers in Development-Role of society in development-Role of peer group in development.

### Unit4: Intelligence

- Intelligence meaning and definition-Multiple Intelligence-Intelligence test-Emotional Intelligence-Intelligence Quotient-Binet–Simon test

### Unit5: Learning

- Learning characteristics-Learning Curve- Factors influencing learning - Class room Learning

### Unit6: Exceptional Child

- Gifted child-Creative child-Slow learners-Mentally retarded(MR)- Delinquency - Learning disabilities: Dyslexia, Dysgraphia, Dyscalculia and ADHD- Handling Learning Disabilities

## Paper 2: Health and Physical Education

### Unit1: Health

- What is Health?-Factors affecting health -Social and personal hygiene-Health education-Life style Diseases

### Unit2: Mental health

- Factors affecting Mental health-Mental health of child-Role teacher-Mental hygiene

### Unit3: Physical Education

- Relevance and Significance -Physical activities-Physical fitness-first aid-The Organization of sports meet

- Body Mass Index (BMI)

### Unit5: Balanced Diet and Nutrition

- Food Habits and healthy food-Time schedule-Nutrition-Malnutrition

## Paper 3: Communication Skills

**Unit1: Communication**

- What is Communication-Stages of Communication-types of Communication-Barriers of Communication

**Unit2: Basic Communication Skills**

- Listening skill-Speaking skill-Reading skill-Writing skill

**Unit3: Theories of Communication**

- Aristotle's Classical Theory-Shannon Weaver Model-Schramm's Model-Lasswell's Formula- Actor network theory-Adaptive Structuration theory-Agenda Setting theory.

**Unit4: Class Room Communication**

- Characteristics of effective classroom communication -Using technology in classroom communication-Modes of interaction in classroom -Classroom communication factors-5c's of communication

**Unit5: Mother tongue**

- Importance of mother tongue-Mother tongue in education-Mother tongue in national curriculum framework (NCF)

## Paper 4: School Organization and Management

**Unit1: Educational Management**

- Need and importance-Location and school building-Playground, Playroom and classroom

**Unit2: School records**

- Need and importance – Types of recodes-Type of registers-Type of report-Preparation of report

**Unit3: School Management**

- Organizational structure of the school- Classroom management: Selection of Class Monitor, Head Boy and Head Girl-Uniform-Assembly-Finance

**Unit4: Study Planning**

- Preparation of lesson plan-Timetable-Exam and evaluation-Question paper preparation

**Unit5: Society and school**

- Relationship between school and community-PTA-Work experience- Socially Useful Productive Work (SUPW).

## Paper 5: Teaching Methodology

**Unit1: Primary Education**

- Meaning and Scope of Education-Aims of Education-Primary Education-Aims And Objectives of School-Role of a teacher in a Primary class-Role of teachers in instilling scientific attitude in children-Child Centered Education-Value-based Education-The Need and Importance of School

**Unit2: Educational Philosophers**

- Comenius - Tagore-Rousseau - John Dewey - Swami Vivekananda - Mahathma Gandhi – Aurobindo - Maria Montessori.

**Unit3: Teaching Methodology**

- Types of teaching methods- Behaviorist Theory, Cognitive Theory, Constructivist Theory and Modern and Applied Theories- Blooms Taxonomy -Project based learning-Features of Teaching Methods-Activity based learning-Functions of textbooks in preschool-Collaborate learning-Teaching aids-Static, working and 3D models-Interactive Boards.

**Unit4: Evaluation**

- Aims of evaluation-Types of evaluation-Preparation of Question Paper: Question Types, Validity, Consistency, marking scheme, subject coverage, time management and proof reading

## Paper 6: Computer Technology

**Unit1: Basics of computer**

- Parts of computers-Input and outputs units-Operating a computer and its peripherals-Software–types-Basic maintenance-Computer network

**Unit2: Software for Primary Schools**

- Drawing-Word-Spreadsheets-Presentation tools

**Unit3: Tools for Online classes**

- Learning management system (LMS)-Tools for Class Meetings-Class Management

**Unit 4: AI for teachers**

- What is Artificial intelligence-Benefits of AI Tools in Teaching-AI tools for educators

### Practical Components

- Classroom Teaching-Teaching Records and Assignments
- Seminars and Assignments
- Case Studies
- Creative Teaching Aids(Charts, Flashcards, Cutouts, Video and Audio aids, Slides)
- Reports and Records
- Lesson Planning
- Tours and Camps

# LBS Centre for Science andTechnology
# (Offline Course)

| | |
|---|---|
| **Course Title** | CERTIFICATE COURSE ON ADVANCED EXCEL |
| **Abbreviation of Course Title** | CCAE |
| **Duration of the course in Hours** | 80 hrs |
| **Duration of the course in Months** | 2 Months |
| **Course Fees** | 3000 |
| **Eligibility** | SSLC |

## About the Course

To provide the student knowledge about basics and advanced excel

## Objectives of the course

- Advanced Formulas and Functions
- Data Cleaning and Preparation
- Conditional Formatting
- Data Visualization

## Scheme of Study

| Subject Code | Name of the subject | Theory (hrs) | Practical (hrs) | Total (hrs) |
|---|---|---|---|---|
| CCAE | CERTIFICATE COURSE IN ADVANCED EXCEL | 40 | 40 | 80 |

## Syllabus of the course

### Chapter 1:Excel Introduction

- An overview of the screen, navigation and basic spreadsheet concepts
- Various selection techniques
- Shortcut Keys

### Chapter 2:Customizing Excel

- Customizing the Ribbon
- Using and Customizing AutoCorrect
- Changing Excel's Default Options

### Chapter 3:Using Basic Functions

- Using Functions – Sum, Average, Max, Min, Count, Counta.
- Absolute, Mixed and Relative Referencing.

### Chapter 4:Formatting and Proofing

- Currency Format
- Format Painter
- Formatting Dates
- Custom and Special Formats
- Formatting Cells with Number formats, Font formats, Alignment, Borders, etc
- Basic conditional formatting

**Chapter 5:Mathematical Functions**

- SumIf, SumIfs CountIf, CountIfs AverageIf, AverageIfs, Nested IF, IF ERROR Statement, AND, OR, NOT

**Chapter 6: Protecting Excel**

- File Level Protection.
- Workbook, Worksheet Protection.

**Chapter 7: Text Functions**

- Upper, Lower, Proper
- Left, Mid, Right
- Trim, Len, Exact
- Concatenate
- Find, Substitute

**Chapter 8: Date and Time Functions**

- Today, Now
- Day, Month, Year
- Date, Date if, DateAdd
- EOMonth, Weekday

**Chapter 9: Advanced Paste Special Techniques**

- Paste Formulas, Paste Formats
- Paste Validations
- Transpose Tables

**Chapter 10: New in Excel 2013 / 2016/2019 & 365**

- New Charts – Tree map & Waterfall
- Sunburst, Box and whisker Charts
- Combo Charts – Secondary Axis
- Adding Slicers Tool in Pivot & Tables
- Using Power Map and Power View
- Forecast Sheet
- Sparklines -Line, Column & Win/ Loss
- Using 3-D Map
- New Controls in Pivot Table – Field, Items and Sets
- Various Time Lines in Pivot Table
- Auto complete a data range and list
- Quick Analysis Tool
- Smart Lookup and manage Store

**Chapter 11: Sorting and Filtering**

- Filtering on Text, Numbers & Colors
- Sorting Options
- Advanced Filters on 15-20 different criteria(s)

**Chapter 12: Printing Workbooks**

- Setting Up Print Area
- Customizing Headers & Footers
- Designing the structure of a template
- Print Titles –Repeat Rows / Columns

**Chapter 13: What If Analysis**

- Goal Seek
- Scenario Analysis
- Data Tables (PMT Function)
- Solver Tool

**Chapter 14: Logical Functions**

- If Function
- How to Fix Errors – if error
- Nested If
- Complex if and or functions

**Chapter 15: Data Validation**

- Number, Date & Time Validation
- Text and List Validation
- Custom validations based on formula for a cell
- Dynamic Dropdown List Creation using Data Validation – Dependency List

**Chapter 16: Lookup Functions**

- Vlookup / HLookup
- Index and Match
- Creating Smooth User Interface Using Lookup
- Nested VLookup
- Reverse Lookup using Choose Function
- Worksheet linking using Indirect
- Vlookup with Helper Column

**Chapter 17: Pivot Tables**

- Creating Simple Pivot Tables
- Basic and Advanced Value Field Setting
- Classic Pivot table
- Choosing Field
- Filtering PivotTables
- Modifying PivotTable Data
- Grouping based on numbers and Dates
- Calculated Field & Calculated Items
- Arrays Functions
- What are the Array Formulas, Use of the Array Formulas?

- Basic Examples of Arrays (Using ctrl+shift+enter).
- Array with if, len and mid functions formulas.
- Array with Lookup functions.
- Advanced Use of formulas with Array

**Chapter 18: Charts and slicers**

- Various Charts i.e. Bar Charts / Pie Charts / Line Charts
- Using SLICERS, Filter data with Slicers
- Manage Primary and Secondary Axis

**Chapter 19: Excel Dashboard**

- Planning a Dashboard
- Adding Tables and Charts to Dashboard
- Adding Dynamic Contents to Dashboard

# LBS Centre for Science and Technology
# (Offline Course)

| | |
|---|---|
| **Course Title:** | CERTIFICATE COURSE ON AI TOOLS FOR TEACHERS |
| **Abbreviation of Course Title:** | ATT |
| **Duration of the course in Hours:** | 80 Hours |
| **Duration of the course in Month:** | 2 Months |
| **Course Fee:** | 4000 |
| **Eligibility:** | Plus Two |

## About The Course

The AI Tools for Teachers (ATT) course is a 80-hour program designed to help educators integrate AI into their teaching practices. Over two months, participants will explore ChatGPT, Google Gemini, Claude AI, Microsoft Co-Pilot, and other AI tools to enhance lesson planning, content creation, and classroom management. This Plus Two eligibility course empowers teachers to create interactive activities, automate feedback, and leverage AI for efficient and engaging education.

## Course Objectives

Get a handle on generative AI basics and how it helps teachers. Checkout ChatGPT, Google Gemini, Claude AI, and Microsoft Co-Pilot. Learn to use AI tools for lesson plans, activities, and classroom control.Get good at using AI for making stuff – text,presentations, images, videos.Make your teaching better with AI feedback, games, and data.Know the ethical stuff and how to spot AI-made content.

**Scheme of study**

| Subject Code | SUBJECT | Theory (hour) | Practical (hour) | Total (hour) |
|---|---|---|---|---|
| **ATT** | **AI tools for teachers** | **30** | **50** | **80 Hrs** |

## Course Content

## Chapter 1:

- Introduction to Generative AI
- Benefits of AI Tools in Teaching
- Introduction to Chat GPT
- Text Generation Using Chat GPT
- Introduction to Google Gemini
- Introduction to Claude AI

- Introduction to Microsoft Co-Pilot
- Introduction to Simplified AI
- Introduction to Write Sonic AI

## Chapter 2:

- Perplexity: Search Web with AI
- Malayalam Text-to-Speech Using Narakeet
- Chat GPT for Teaching
- Applications of Chat GPT
- Preparing for the Module with AI
- Preparing for Classes with AI
- AI for Lesson Planning
- Creating Effective Activities for Classrooms
- Interactive Activities with AI
- Assignments for Teaching
- Automated Feedback to Improve Teaching

## Chapter 3:

- AI-Driven Quiz Generation
- How to Use AI to Create Your Test
- Parent Communication for Exam Preparation
- Tools to Conduct Your Test
- AI-Powered Analytics
- AI Writing Detection Methods
- Gamma for Slide Presentations
- Creating Video Lessons from Presentations
- Creating Video Lessons Using DID AI
- Creating Malayalam Video Lessons with Avatar
- Best Preparation Tools Other than PowerPoint
- Create Your Own Designs and Images for Presentations
- How to Collaborate on Presentations
- Create an Entire Presentation Using AI
- Create and Assess Assignments with AI

## Chapter 4:

- AI Project-Based Learning
- AI-Driven Gamification inTeaching
- Flash card Generation with AI
- Collaborative Tools with AI
- Image Generation with DALL·E2
- Art with Mid Journey AI
- Introduction to Ideogram AI

- Generating Images Using Stable Diffusion
- Stability AI: Dream Studio
- Stability AI: Clip Drop
- Canva: Text to Image
- Image Creation Using Microsoft Co-Pilot
- Microsoft Designer: Design with AI
- Adobe Fire fly: Creative Made Easy
- Creating Videos Using Hey Gen
- Using VR & AR in Education

# LBS Centre for Science andTechnology
# (Offline Course)

| | |
|---|---|
| **CourseTitle** | **CERTIFICATE COURSE ON DATA SCIENCE & MACHINE LEARNING** |
| **Abbreviationof CourseTitle** | CCDS & ML |
| **Durationof thecoursein Hours** | 200hrs |
| **Durationof thecourseinMonths** | 5 Months |
| **CourseFees** | 35000 |
| **Eligibility** | +2 |

## About the Course

Data science is a multidisciplinary field that combines scientific methods, algorithms, and programming to extract knowledge and insights from data.

## Objectives of the course

- To extract meaningful insights and knowledge from data to support decision-making and problem-solving.
- Data Cleaning and Preparation
- Explore, sort and analyze mega data.
- Data Visualization

## SchemeofStudy

| Subject Code | Nameofthesubject | Theory (hrs) | Practical (hrs) | Total (hrs) |
|---|---|---|---|---|
| CCDS&ML | CERTIFICATE COURSE IN DATA SCIENCE & MACHINE LEARNING | 75 | 125 | 200 |

## Syllabus of the course

**Introduction:**

Data Science & Machine Learning is a technology training program that will be of high industry relevance in the coming years. By going through the program, students will be able to achieve certification that will help them to apply for different job roles in many Technology and Business organizations (such as Information Technology, Banking, Financial Services, Retail) that apply such technologies.

## 1. Data Analysis using Excel

**UNIT 1.** Introduction to Excel Interface, Basics of Excel, Spreadsheet basics, Data Entry, Fundamentals of Excel, Insertion, Deletion, Importing Data, Table Creation. Introduction to Excel Formulas.

**UNIT 2.** Basics of Data Privacy, Introduction to Data Cleaning, Removing duplicate data, Handling missing data, Correcting inconsistent data. Data exploration and summary statistics, Sorting and Filtering data, Conditional Formatting, Data validation, different math and statistical functions, sumif function, Countif, averageif, upper, lower, if function, VLOOKUP and HLOOKUP.

**UNIT 3.** Introduction to Pivot tables, Creating Pivot tables, Data Analysis and Visualization using Pivot Table, Creating Dashboard. Power Query & Data Transformation. Forecasting & Trend Analysis (Inserting Line chart &Customizing).

## 2. Power BI

**UNIT 1.** Understanding the Power BI Ecosystem, Installation of Power BI Desktop Exploring the PowerBI interface, Connecting to data sources. Relationships in Power BI, Cardinality, Building Star schema data model, Introduction to Power Query, Importing and Loading Data into Power Query, Data Transformation and merging data(joins).

**UNIT 2.** Handling missing data & Duplicate Data, Filtering rows, Aggregating and grouping data in Power Query. What is DAX?, Calculated Columns and tables using DAX, Measures, Concepts, and Functions(if, date time, aggregations, calculate), DAX connection with CSV, MS Access, POWER BI cloud(cloud components, use, creating new report in cloud, power BI service and power BI mobile, Power BI and excel together.

**UNIT 3.** Data Visualization & Formatting - Bar, Column, Pie, Donut, Line, Area, Scatter, KPI & Gauge, Table, Matrix, Map, Treemap, Combo. Applying Conditional Formatting And Data Bars; Creating Hierarchies; Filters, Slicers; Drill-Downs. Creating a comprehensive report in Power BI. Create bookmarks and buttons, Design a great Power BI dashboard.

## 3. MySQL

**UNIT 1.** Introduction to databases and RDMS, Overview of MySQL, Installing and getting started With MySql workbench.

**UNIT 2.** SQL Database - table, data types, Data Definition Language (DDL), Data Manipulation Language (DML), DCL, TCL. keys, constraints, SQL Clauses. MySQL Functions and Joins, MySQL subqueries and views, MySQL stored procedures and triggers.

## 4. Python Programming

**UNIT 1.** Introduction to Programming Languages and Python, Installing Anaconda and Jupyter

Notebook. Basic Python Syntax and Data Types.

**UNIT 2.** Data Structures and Operators. Selection statements, Control statements, break and continue statements, nested loops. Functions in Python, recursion, Generators, and Decorators. File Handling and Exception Handling, Modules, Object Oriented Programming, importing data(reading and writing CSV file)

**UNIT 3.** Database connection in Python using Mysql. Development of CRUD operation using Python and Mysql

**UNIT 4.** Pandas and Numpy, Data Explorations & Wraggling. Data Visualization - Chart, Histogram, Matplotlib and Seaborn, Keras, Open CV

## 5. MachineLearning

**UNIT 1.** Introduction to artificial intelligence, Real world applications of AI, Example of AI in every day life, machine learning, different types of machine learning.

**UNIT 2**. Introduction to Statistics, measures of dispersion, symmetry, inferential statistics, standard deviation, probability and distribution, hypothesis-null and alternate hypothesis, type I and type II errors, z testb, t test, chi-square test, f test, ANOVA A/B testing

**UNIT 3.** Supervised learning algorithms- linear regression, logistic regression, decision tree, random forest, naïve bayes

**UNIT 4.** Unsupervised Learning algorithm-K means clustering, PCA, hierarchical clustering, dimensionality reduction algorithm.

**UNIT 5.** Reinforcement learning algorithm- model based RL, model free RL, applications of RL

**UNIT 6.** Deep learning, neural network, convolutional neural network, recurrent neural network, natural language processing

**UNIT 7**. Preprocessing, handling missing values, handling duplication and outliers, treating skewed data, feature engineering, feature scaling, feature selection

- Develop different machine learning concept using python
- **ACADEMIC MINI PROJECT MANDATORY**

# LBS Centre for Science and Technology

## (Offline Course)

| | |
|---|---|
| **Course Title:** | **CERTIFICATE COURSE ON DIGITAL MARKETING** |
| **Abbreviation of Course Title:** | CCDM |
| **Duration of the course in Hours:** | 120 Hours |
| **Duration of the course in Month:** | 3 Months |
| **Course Fee:** | 6000 |
| **Eligibility:** | SSLC |

## About the Course

Develop and implement effective social media strategies across leading platforms. Optimize paid advertising campaigns and refine audience segmentation techniques. Master content creation and promotion for blogs, social media, and email marketing initiatives.Develop expertise in email marketing campaign creation and performance analysis.Utilize web analytics to effectively interpret website traffic and user behavior.Develop and manage efficient digital marketing campaign budgets and execution plans.

## Course Objectives

Develop and implement effective social media strategies across leading platforms. Optimize paid advertising campaigns and refine audience segmentation techniques. Master content creation and promotion for blogs, social media, and email marketing initiatives.Develop expertise in email marketing campaign creation and performance analysis.Utilize web analytics to effectively interpret website traffic and user behavior.Develop and manage efficient digital marketing campaign budgets and execution plans.

## Scheme of study

| Subject Code | SUBJECT | Theory (hour) | Practical (hour) | Total (hour) |
|---|---|---|---|---|
| CCDM 1 | Certificate course on digital marketing | 80 | 40 | 120 hrs |

## Course Content

**Module 1: Introduction to Digital Marketing**

- Evolution of marketing in the digital era
- Overview of major digital marketing channels
- Key concepts and terminology

**Module 2: SEO Basics**

- On-Page SEO: Keyword research, content optimization, and meta tags
- Off-Page SEO: Link building and social media optimization

**Module 3: Social Media Marketing**

- Overview of platforms (Facebook, Instagram, LinkedIn)

- Creating a content strategy and calendar
- Basics of community engagement

**Module 4: Paid Ads Optimization**

- Introduction to Google Ads and Facebook Ads
- Targeting and audience segmentation
- Budget management basics

**Module 5: Content Marketing**

- Creating engaging content for blogs, social media, and email
- Basics of content promotion

**Module 6: Email Marketing**

- Building and segmenting email lists
- Creating effective email campaigns Measuring campaign performance

**Module 7: Web Analytics**

- Introduction to Google Analytics
- Understanding website traffic and user behavior
- Key metrics and KPIs

**Module 8: Project Management and Budgeting**

- Planning a digital marketing campaign
- Allocating resources effectively
- Basics of performance tracking and adjustments

# LBSCentreforScienceandTechnology (Offline Course)

| | |
|---|---|
| **CourseTitle** | **CERTIFICATE COURSE ON FULL STACK DEVELOPMENT** |
| **Abbreviationof CourseTitle** | CCFSD |
| **Durationof thecoursein Hours** | 200hrs |
| **Durationof thecourseinMonths** | 5 Months |
| **CourseFees** | 35,000 |
| **Eligibility** | Plus Two(Computer Science/Any Stream) |

## AbouttheCourse

Full stack development is the process of building both the front-end (user-facing) and back-end (server-side) of an application, encompassing the entire application development lifecycle.

## Objectivesofthecourse

To enable developers to build complete web applications, from the user interface (front-end) to the server-side logic (back-end)

## SchemeofStudy

| Subject Code | Nameofthesubject | Theory (hrs) | Practical (hrs) | Total (hrs) |
|---|---|---|---|---|
| CCFSD | CERTIFICATE COURSE IN FULL STACK DEVELOPMENT | 75 | 125 | 200 |

## Syllabusofthecourse

1. **Introduction To Python**
   - 1.1. Installation and Working with Python
   - 1. 2.Understanding Python variables
   - 1. 3.Python basic Operators
   - 1. 4.Understanding python blocks

2. **Python Data Types**
   - 2.1. Declaring and using Numeric data types: int, float, complex
   - 2.2. Using string data type and string operations
   - 2.3. Defining list and list slicing
   - 2.4. Use of Tuple, Set, Dictionary data type

3. **Python Program Flow Control**
   - 3.1. Conditional blocks using if, else and elif
   - 3.2. for Statements
   - 3.3.while Statements
   - 3.4. The range() Function
   - 3.5. For loop using ranges, string, list and dictionaries
   - 3.6. break and continue Statements, and else Clauses on Loops
   - 3.7. pass Statements
   - 3.8. Programming using Python conditional and loops block

4. **Python Functions**
   - 4.1. Defining Functions
   - 4.2. More on Defining Functions
     - 4.2.1. Default Argument Values
     - 4.2.2. Keyword Arguments
     - 4.2.3. Unpacking Argument Lists
     - 4.2.4. Lambda Expressions

5. **Python Modules and Libraries**
   - 5.1. Organizing python projects into modules
   - 5.2. Importing own module as well as external modules
   - 5.3. Understanding Libraries ( NumPy and Pandas )
   - 5.4. Programming using modules and external packages

6. **Python String**
   - 6.1. Understanding string in build methods
   - 6.2. Programming using string in build function

7. **Python List and Dictionary Manipulations**
   - 7.1. Building blocks of python programs
   - 7.2.List manipulation using in build methods
   - 7.3. Dictionary manipulation
   - 7.4. Programming using list and dictionary in build function

8. **Python File Operation**
   - 8.1. Reading config files in python
   - 8.2. Writing log files in python
   - 8.3. Understanding read functions, read(), readline() and readlines()
   - 8.4. Understanding write functions, write() and writelines()
   - 8.5. Manipulating file pointer using seek
   - 8.6. Programming using file operations

9. **Python Object Oriented Programming – OOPs**
   - 9.1. A Word About Names and Objects
   - 9.2. Python Scopes and Namespaces
   - 9.3. A First Look at Classes
     - 9.3.1. Concept of class, object and instances
     - 9.3.2. Constructor, class attributes and destructors
     - 9.3.3. Real time use of class in live projects
     - 9.3.4. Inheritance, overlapping and overloading operators
     - 9.3.5. Adding and retrieving dynamic attributes of classes
   - 9.4. Programming using Oops support

10. **Python Regular Expression**
    - 10.1. Powerful pattern matching and searching
    - 10.2. Power of pattern searching using regex in python
    - 10.3. Real time parsing of networking or system data using regex
    - 10.4. Password, email, url validation using regular expression
    - 10.5. Pattern finding programs using regular expression

11. **Python Exception Handling**
    - 11.1. try,except,else
    - 11.2. try-finally clause
    - 11.3. Avoiding code break using exception handling
    - 11.4 Safeguarding file operation using exception handling
    - 11.5. Handling and helping developer with error code
    - 11.6. Programming using Exception handling

12. **Python Database Interaction**
    - 14.1. SQLITE3 Database connection using python
    - 14.2. Creating and searching tables
    - 14.3. Reading and storing config information on database
    - 14.4. Programming using database connections
    - 14.4 Programming using MangoDB

13. **Python Multithreading and Understanding threads**
    - 13.1. Forking threads synchronizing the threads
    - 13.2. Programming using multithreading

14. **Graphical User Interface**
    - 14.1. GUI in python Tkinter widgets
    - 14.2. Programming using Tkinter

15. **Python Libraries**

    Different statements of various libraries Numpy, Scipy, Pandas, matplotlib,OpenCV, Keras(wth sample programs)

16. **Django**

    Web framework, MVC design pattern, installing Django, Setting up a database, starting a project, understanding folder structure, Database and views , static files and forms, Django admin, models in Django, forms in django, Views in Django, Template in Django, development server, django commands.

**17. Web Development Tools**

Introduction to **HTML**, different HTML tags, **CSS,** Java Script statements, control statements in java

script, validations in Java script, **React JS** introduction, components, component collection, styling, props validation, event management, state management, Pagination, form programming, conditional rendering, Bootstrap, map, table, testing**, jquery**- introduction, jquery effect, jquery traversing, jquery ajax,

***Mini Project Development**