

**BHARATHIAR UNIVERSITY: COIMBATORE 641046**  
**CENTRE FOR COLLABORATION OF INDUSTRY AND INSTITUTIONS(CCII)**  
**CERTIFICATE IN PROGRAMMING FUNDAMENTALS**  
**SCHEME OF EXAMINATION**

<b>PAPER</b>	<b>TOTAL MARKS</b>	<b>DURATION</b>
<b>PAPER – I</b> THEORY EXAMINATION (60- Objective type of questions only)	100	2 HOURS
<b>PAPER – II</b> PRACTICAL EXAMINATION	100	2 HOURS
<b>PAPER – III</b> PROJECT ACTIVITY (one - Project submission only)	100	-
<b>TOTAL</b>	<b>300</b>	<b>-</b>

**Applicable to Students in class 7 and above**

# Certificate in Programming Fundamentals

## Paper I - Unit Wise

### Syllabus

#### UNIT - I

Problem solving technique: Introduction - Problem definition- Algorithm- Flowchart: Symbols used in a flowchart- Rules for denoting a flowchart. Program coding- Characteristics of a good program- Debugging and testing: Types of errors- Compile-Time Errors - Run Time Errors-Logical errors. Documentation: Internal Documentation-External Documentation

Operating system: Introduction - Types of operating system: Real Time OS, Single\_User/ Single\_Tasking Os, Single\_User/Multitasking Os, Multiuser/Multitasking OS. Providing a user interface: Graphical user interface- Command user interface- Running programs- Computer Program - Hardware/ Software interaction. Code-Machine Code - Programming languages-Compiler and Interpreters: Compiler- Interpreter-Enhancing an OS with utility software.

#### UNIT - II

Fundamentals of basic programming: Program - Importance of basic programming - Control commands in basic: Program commands, system commands-System commands in basic programming - Function keys in basic - Operators : Arithmetic operators, Hierarchy of arithmetic operators, Relational Operators, Logical Operator:- Getting started with programming - Variable - Types of variable - Line Number - Basic Programming Statements: Non-executable statement - Executable statement - Branching Statements: Conditional- Un- conditional Statements.

#### UNIT - III

Log on to Ms\_Access: Introduction to database - Database Management Systems - What makes of data- base - Fields and Records - Purpose of database systems - Types of database. Introduction to Ms-Access: What is Ms-Access- Features of Ms-Access-Opening Ms-Access-Creating tables in Ms-Access, What is Table-Terms related to Table- Creating Tables - To create a Table in design view - Primary Key - Datasheet Records: Switching Views - Entering Data - Manipulating Data - Closing Access Application.

#### UNIT - IV

Forms - Create a form using a wizard - Handle the inputs - Preview and print selected form Records - Maintain table data - Queries ; How to Create a Query - Creating a cross tab query - Sorting and Filtering; How to create a filter - Navigating a Query and sorting the results - Reports

#### UNIT - V

Introduction to Visual Basic: What is Visual Basic? - Event\_Driven Programming - Aspects of Event\_Driven Programming - Getting started with Visual Basic - Parts of Visual Basic - Windows - Toolbar - Visual Basic window - Toolbox - How to activate toolbox, Working with control: What is a control? - Placing controls - Resizing the controls - Designing an application form - Saving the project - Run the project - How to close Visual Basic Project - How to close Visual Basic Window.

Working with Controls(Coding) - What is a coding - Procedure in coding - Data Control : Features of data control- Using data control - Setting the properties for data control - Importance of text box- Database Connectivity - How to Connect Ms- Access and Visual Basic - Sample Program Using DAO Control - Displaying the Records - Moving Records Using Next and Previous Buttons - Moving Records Using Next and Previous Buttons and Adding and Deleting Records.

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# Paper II - Practical I - Basic, Ms - Access and VB Programming

## Paper - II

(Practical Program)

### Basic

1. Write a BASIC program to print the Compound Interest.
2. Write a BASIC program to print your Biodata.
3. Write a BASIC program to find the Net Salary of an employee  
(Net Salary = Basic+HRA-PF)

### Ms - Access

1. Create a database employee and table " emp1" with the following fields Emp No, Emp.Name, Basic, HR, DA, Gross Pay, Net Pay. Set the primary key for the field Emp. No. Enter 10 records and save it using design view.
2. Open database Employee and click Forms option from the database window. Click Create a form using wizard option. Select emp1 table. Select all fields. Click on justified layout. Select the style International. Name the form as empform.
3. Open database Employee and click Reports option from the database window. Click Create a report using wizard option. Select emp1 table. Select all fields. Click on justified layout. Select the style name and save the report as empreport.

### Visual Basic

1. Design an application form using VB controls with the following fields (Name, Age, DOB, Address, Qualification, and Hobby).
2. Write a VB code to perform arithmetic operations using text boxes & command buttons (Add, Subtract)
3. Design a student mark list using VB controls. Calculate total and average using VB code.
4. Place a data controls to display the various departments in an IT Company using Database Connectivity.



## Paper III - Project / Assignment

### Project Questions / Assignment Questions

#### Paper - III

##### Basic Programming (Aim, Algorithm, Flowchart, Source Code, Output, Result)

1. Write a basic program to find the given number is odd or even.
2. Write a basic program to read the marks obtained by a student in various subjects and calculate total and average.

##### Ms - Access

3.
  - a. Open a student database and create a table "stud1" with Reg.No, Name, Tamil, English, Maths, Science, SST, Total, Average and Save the table close it. Add one more field result and modify the structure of the table. Enter 10 records and save the table. Set
  - b. the primary key for the field "Reg.No".

Click on Create query by using wizard option from the right panel of database of Database window. In the Simple Query dialog box select stud1 table. Specify the fields for the Query. Specify the title for the Query as mark details and click Finish.

##### Visual Basic

4. Design a simple calculator to perform the arithmetic operations like Addition, Subtraction, Multiplication, and Division (using coding)
5. Design an Employee salary form with the following fields.  
\* Emp.No, Emp.Name, Basic Pay, Hr, DA, Gross pay and Net Pay.  
\* Calculate the gross pay (HR+DA) and also calculate the Net Pay  
(Basic Pay + Gross Pay) using the controls like labels, text boxes, and command buttons.
6. Design a student mark list using the controls and connect the student database using Data Control and also perform the actions like Moving the records using Next and Previous Buttons, Adding and Deleting datas.