VIKRAM UNIVERSITY, UJJAIN
INSTITUTE OF COMPUTER SCIENCE

PROGRAMME TITLE: **Certificate Course in Python Programming Language**

DURATION OF COURSE: 6 Months

SCOPE: This certification course will be run only at the Institute of Computer science. The main objective of this course is to make students self dependent (आत्मनिर्भर) in computer programming and computer technology, so that students can make their career in computer technology field.

PROGRAMME OBJECTIVES:

The objective of the Certification in Python Programming Language programme is to prepare students for productive careers in the software industry and computer programming job. Certification courses are aimed at skills development in computers using Programming Language skills.

The main objectives of the Certification in Python Programming Language programme includes:

- To develop in depth understanding of the key concepts of Python Programming Language to impart knowledge of problem solving techniques.
- Focus on development of knowledge and specific skills required in Programming Language with PYTHON.
- To develop competent computer professionals with strong ethical values.

PROGRAMME OUTCOMES (POs)

At the end of this Certification in Python Programming Language programme , student will be able to:

- Prepare software's and Application on computer system.
- Gain understanding of the key programming language skills.
- Understanding the key concepts of Programming Language to improvise organizational performance.

After Completion of the programme students are able to work as-

- **Software Developer.**
- **Language Programmer.**
- **Web Develope**r

COURSE NAME: **PYTHON PROGRAMMING LANGUAGE**

LEVEL OF COURSE: CERTIFICATE COURSE
DURATION: 6 Months
ELIGIBILITY: 10+2
FEE: 3000/-

SCHEME OF EXAMINATION

Paper code	Title of Paper	Theory External Marks	Min.Pass Marks	Internal Mark	Min.Pass Marks	Total
	Paper-I	75	27	25	9	100
	Paper-II	75	27	25	9	100
	Internship/ Industrial Training/ Project Work	150 ------- 300 ---------	54 ------- -------	50 ------- 100 -------	28 ------- -------	200 ------- 400 -------

Code	Topic
Paper- I	PYTHON PROGRAMMING LANGUAGE
Paper-II	Database Management System

Database Management System

UNIT-1

DBMS Concepts and architecture Introduction, Review of file organization techniques, Database approach v/s Traditional tile accessing approach, Advantages of database systems, Data models, Schemas and instances, Data independence, Functions of DBA and designer. Entities and attributes, Entity types, Value, Sets, Key attributes, Relationships, Defining the E-R diagram of database, **Various data models:** Basic concepts of Hierarchical data model. Network data model, and Relational data model, Comparison between the three types of models.

UNIT-2

Relational Data models: Domains, Tuples, Attributes, Relations, Characteristics of relations, Keys, Key attributes of relation, Relational database, Schemas, Integrity constraints, Intension and Extension, **Relational Query languages:** Relational algebra and relational calculus, Relational algebra operations like select, Project, Join, Division, outer union etc.

UNIT-3

Types of relational calculus i.e. Tuple oriented and domain oriented relational calculus and its operations. SQL: Data definition in SQL, update statements and views in SQL QUEL & QBE: Data storage and definitions. Data retrieval queries and update statements etc.

UNIT-4

Data Base Design: Introduction to normalization, Normal forms, Functional dependency, Decomposition, Dependency preservation and losslessjoin, problems with null valued and dangling tuples, multivalued dependencies. Distributed databases, protection, security and integrity constraints,

concurrent operation on databases, recovery, transaction processing, basic concepts of object oriented data base system and design.

UNIT-5

Case study of relational database management systems: Oracle and Microsoft access, Oracle tools.

Reference Books:

1. Data Base Management System by C.J. Date
2. Data Base Management System by Ullman
3. Fundamental of database system byElmasri/Navathe the Benjamin / Cunnings Publishing company inc..
4. Data base design by GioWiederhold, McGraw Hill
5. Fundamental of Data Base Management System by Leon & Leon, Vikas Publishing House Pvt. Ltd.

Python Programming Language

UNIT-I

Introduction: check icon History, Features, Setting up path, Variable and Data Types, Operator

Conditional Statements: if, if-else, if-elif, nested if-else and Looping: for, while, nested loops with break, continue and pass keyword.

String Manipulation: Accessing Strings, Basic Operations, String slices, Function and Methods.

Functions: Defining and Calling of a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables.

UNIT-II

Collection: list, tuple , Dictionaries. Introduction, Accessing values, Working, Properties, Functions and Methods

Modules: Importing module, Math module, Random module, os module, date-time module, calendar module, Packages, user defined module, introduction of pip.

IO: Printing on screen and Reading data from keyboard, Opening and closing file, Reading and writing files, Functions.

UNIT-III

Exception Handling: Except, Try, else, finally clause, User Defined Exceptions, raise user- defined exception, nested try-except.

OOPs concept: Class and object, Attributes, Inheritance, Overloading, Overriding, Data hiding, final and abstract class.

UNIT-IV

Database: Introduction, Connections with MYSQL, Executing queries, Transactions)
web-designing: HTML, CSS, JAVASCRIPT.

UNIT-V

CGI: Introduction, Architecture, CGI environment variable, GET and POST methods.
application using CGI: signup, login and session tracking with server side programming.

References:

1. Programming and Problem Solving with Python (Ashok Namdev Kamthane and Amit Ashok Kamthane) McGraw Hill publication
2. Let Us Python (Kanetkar Yashavant) BPB Publication
3. Python Complete Refernce (Brown Martin C.) McGraw Hill publication
4. Python Programming A Modular Approach (Naveen and Kumar and Taneja Sheetal) PEARSON
5. Beginning Django (Rubio Daniel) Apress

Internship/ Industrial Training/Project Work