GONDWANA UNIVERSITY, GADCHIROLI
DIRECTION NO 32 of 2023

Admission of Students and Conduct of Examinations Leading to the Award of Six Months Certificate Program entitled "Certificate in Python Programming" under Credit System in the Faculty of Science & Technology, Direction 2023"

Whereas, The Maharashtra Public Universities Act,2016 (Maharashtra Act No. VI of 2017) (hereinafter the "Act") governs the Gondwana University, Gadchiroli (hereinafter the " University");

AND

Whereas, the National Education Policy (NEP) 2020 focuses on education and skill development as per the needs of the community. Therefore, the University is introducing Six Months certificate Programme entitled **"Certificate in Python Programming"** under credit system in the Faculty of Humanities and it will be offered by the Model Degree College, a constituent college of the University;

AND

Whereas, as per provisions of section 73(1) of the Act, an ordinance is required to frame to lay down the conditions under which students can be admitted to courses of study for award of a Certificate but since, making of an ordinance is a time-consuming process and there is an urgency for introduction of six-month certificate Programme entitled **"Certificate in Python Programming"** under credit system in the Faculty **Science & Technology**;

Now, therefore, I, Dr. Prashant Shridhar Bokare, Vice-Chancellor of the University, in exercise of my powers under section 12(8) of the Act, do hereby issue the following Directions.

This Direction shall be called **Admission of Students and Conduct of Examinations Leading to the Award of Six Months Certificate Program entitled "Certificate in Python Programming" under Credit System in the Faculty of Science & Technology, Direction 2023"**

1. This direction shall come into force from the date of its issuance.
2. Definitions: -In this Direction, unless the context requires otherwise, the words and phrases shall have the meaning given hereunder.

   a) "Program" means the full-time six-month certificate entitled **"Certificate in Python Programming"** "Application Form" means a form prescribed by the University for seeking admission to Program under this direction.
   b) "Competent Authority" means the Authority appointed by the Vice-Chancellor, for any specific purpose of the Program under this Direction.
   c) "Course" means a subject or a paper offered in any semester under this Program.

d) "Credit" refers to the weightage given to a course, in terms of the number of instructional hours per week assigned to it. In this direction one credit means one hour of teaching work or two hours of practical work.

e) "Credit System" means, the system in which weightage of credits is spread over to different semesters during the period of study.

f) 'Grade letter' is an index to indicate the performance of a student in particular course. It is the depiction of actual marks secured by a student by a letter, the Grade letters are as given in **Table 3.**

g) 'Grade point' is the weightage allotted to each grade letter depending on the range of marks awarded in a course.

h) "HSSC" means the Higher Secondary School Certificate (Standard XII) examination conducted by Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent certificate awarded by any other recognized Board.

i) "Qualifying Examination" means an examination on the basis of which a candidate becomes eligible for admission to this Program.

3. In order to conduct the admission process for admitting students to this Program, the Vice Chancellor shall appoint the "Competent Authority".

4. Intake capacity, Eligibility for application, Admission fees, Curriculum, Examination fees for this Program will be as shown in Table 1 below:

Table: 1

Sr. No.	Subtitle	Details
1	Intake Capacity	20
2	Eligibility for application	HSSC
3	Admission Fees	Admission fees shall be as prescribed/ revised and notified from time to time by the University.
4	Curriculum	As specified in **Annexure-I**
5	Examination Fees	The Examination fees shall be as prescribed/ revised and notified from time to time by the University.

5. **Objectives of the Program: -**
   (a) This course aims to impart proficiency in in Python programming.
   (b) Instill object oriented programming concepts.
   (c) Foster Problem-solving skill using data structure and enable data analysis and visualization techniques for effective information communication and computational tasks.

6. **EVALUATION OF THE PROGRAM**

The internal and university assessment of student performance shall be carrying the weightage as mentioned in the Teaching and Examination Scheme given below:

Table 2: Teaching and Examination Scheme
"CERTIFICATE IN PYTHON PROGRAMMING"
Teaching & Examination Scheme

Sr.No.	Subject	Teaching scheme Hrs/week				Examination Scheme Total Marks The./Pra.										
		Credit				Theory					Practical				Total Marks
			Theory Period	Pra. Period	Total	Duration Hrs.	Max. Theory		Total	Min Pass	Du Hrs.	Max Marks		Min. Pass Marks	
							UA	CA				UA	CA		
1	Python Programming	4	4	-	4	3	80	20	100	40					100
2	Practical	4		8	8						2	60	40	50	100
3	OJT	4											100		100
	Total	12	4	8	12	3	80	20	100	40	2	60	140	50	300

Note:
1. Th=Theory; Pr = Practical; PR=Project; INT=Internship IA = Internal Assessment UA = University Assessment.
Credit Calculations: (1) One credit would mean equivalent of 15 periods of 60 minutes each for Theory.(2) For practical /project /internship/Field work, the Credit Weightage for equivalent hours shall be 50% of that for theory. (3) The strength of Batch of Practical /Workshop / internship / Field visit / Project shall be 20. (4) 10 contact hours equals to 3 credits per semester and 6 credits for two semesters viz one year duration for Project/Field Visit/Industrial Training/Internship
*On Job Training

a. Marks to Letter Grade & Grade Point Conversion

The marks scored by the examinees in their courses/heads of passing of the program shall be converted into Letter Grade and Grade Point as per Table given below:

Table 3: Conversion of marks into letter grade and grade points

SCORED MARKS (x)	Letter Grade	Grade Point (G) (10 point scale)
$85 \leq x \leq 100$	A+	10
$80 \leq x < 85$	A	9
$75 \leq x < 80$	B+	8
$70 \leq x < 75$	B	7
$65 \leq x < 70$	C+	6
$60 \leq x < 65$	C	5
$50 \leq x < 60$	D	4
$0 \leq x < 50$	F	0
Absent in Examination	Z	-

*Note: As such, the lowest passing Grade in any passing head shall be 'D'.

a) Calculation of Grade Point Average (GPA)

The Grade Point Average (GPA) shall be calculated for the program and shall be evaluated as mentioned below:

$$GPA = \frac{\sum_{i=1}^{n}(C_i \times G_i)}{\sum_{i=1}^{n} C_i}$$

Where C_i is the number of credits of the ith course and G_i is the grade point scored by the student in the ith course.

The percentage of marks scored based on obtained GPA can be evaluated using below given formula.

$$Percentage = (GPA - 0.75) * 10$$

8. Division of Passing

The Division of Passing shall be based on GPA secured by an Examinee as shown in the Table 3 below:

Table 3: Interpretation of GPA into Division of Passing

INTERVAL OF GPA	DIVISION OF PASSING
$GPA \geq 8.25$	First with Distinction
$6.75 \leq GPA < 8.25$	First
$6.00 \leq GPA < 6.75$	Second
$5.00 \leq GPA < 6.00$	Pass

9. Declaration of result is based on the Grade Point Average (GPA) earned towards the end of the program as given in Table 3. The names of the successful examinees passing the examination as a whole in the minimum prescribed period and obtaining prescribed number of places securing the grades as per adopted credit-grade system shall be arranged in order of merit as provided in ordinance relating to examinations in general.

10. Provisions with respect to grace marks for passing in a particular course/ head of passing and improvement of Division (Higher Class) and getting Distinction in any course shall be as per relevant Direction/Ordinance of the University.

11. An examinee who does not qualify in examination or remain absent for the examination, shall be eligible to appear in the same re-examination, on payment of re-examination fee and such other fees as may be prescribed from time to time, within 30 days from the date of result.

12. Successful examinees who secure minimum prescribed registered credits (12) for the program duration shall be entitled to receive a Certificate of full time six months diploma entitled **"Certificate in Python Programming"** in the Faculty of Science & Technology signed by the Vice Chancellor of the University on payment of prescribed fees.

13. In the event of any query regarding interpretation/application of any provision of this direction, the Director of Board of Examinations and Evaluation shall refer the matter for the decision of the Dean of the Faculty of Science & Technology or alternatively to the Board of Deans if found necessary.

14. For any other matter pertaining to this Program and its final award which is beyond the purview of this Direction, it shall be referred to the Vice-Chancellor and that the decision of the Vice-Chancellor shall be final and binding on all the concerned.

Place: Gadchiroli
Date: / /2023

(Dr. Prashant S. Bokare)
Vice-Chancellor

PYTHON PROGRAMMING

Max. Marks - 100

Course Objectives: The course aims to impart proficiency in Python programming, instill object-oriented programming concepts, foster problem-solving skills using data structures, and enable data analysis and visualization techniques for effective information communication and computational tasks.

Unit I: Basic Elements, Control Statements, String Manipulation, and Collection

Introduction to Python, Features of Python, Different Methods to Run Python, Basic Syntax, Writing and Executing simple programs, Comments, Basic Elements (Data Types, Constants, Variable, Operator, Precedence of Operator, Expression, Type Conversion, Objects), Indentation in Python, Input and Output in Python: Printing on screen, reading data from keyboard, import function
Control Statements: Branching (if, else, elif), Iteration (while, for, Nested Loop), Terminating Loops, Skipping Specific conditions,
String Manipulation: Declaring strings, strings function. Range and enumerate functions, Manipulating Collections: Tuples, Lists, Sets, Dictionaries, Built-in methods of lists, sets, and dictionaries, Mutable and Immutable Objects.

Unit II: Functions, Modules, and Exception Handling

Functions Definition, Advantage of function, types of function, Function Calling, Function parameters formal parameters, actual parameter, and Anonymous function, Function Arguments (Required, Keyword, Default), Global and local variable, Recursion,
Exceptions, Built-in Exceptions, Argument of an Exception, Python Standard Exceptions (IndexError, OverflowError, ZeroDivisionError, RuntimeError), Exception Handling. User Defined Exception and Raising Exception

Unit III: Module, File Handling, and Object-Oriented Programming

Modules, Built-in Modules (math, statistics, time, random), Creating Modules, packages
File Handling (Opening, Closing, Writing, Reading),
Class Definition, Object Creation, Built-in Attribute Methods, Encapsulation, Data Hiding, Inheritance, Multi-Level Inheritance, Polymorphism (Method Overriding, Operator Overloading)

Unit IV: Arrays, Data Visualization & SQL Database

Arrays in Python, Numpy Module, Creating Arrays (array, zeros, ones, empty, linspace, arrange, random), Two-Dimensional Array, Indexing, Slicing, Iterating, Copying, Splitting, Shape Manipulation (reshape, transpose, resize), Arithmetic Operations on Arrays.
Data Visualization in Python (matplotlib Module, pyplot, plot(), hist, scatter, bar charts, Formatting, figure(), subplot(), text(), xlabel(), ylabel(), title(), Plotting Simple Mathematical Functions (sin x, x2)
Data Structure: List and its methods, Using the list as a stack, Using the list as Queues, The del Statements, Sets, Dictionaries
SQL Database: Connection Object, Cursor object Files: File object Attributes, File operations, Appending Data to a file, Regular Expression

Text Book

1. Dr. S. B. Kishor, "Python", 1st Ed. published in Sep. 2023 by GANU Prakashan, Nagpur. (ISBN: 978-81-864733-5-8)

2. Charles Dierbach, Introduction to Computer Science using Python, Wiley, 2013
3. James Payne, Beginning Python: Using Python 2.6 and Python 3, Wiley India, 2010

References:
1. Paul Gries , Jennifer Campbell, Jason Montojo, Practical Programming: An Introduction to Computer Science Using Python 3, Pragmatic Bookshelf, 2/E 2014
2. Adesh Pandey, Programming Languages – Principles and Paradigms, Narosa, 2008

Gondwana University, Gadchiroli.

NEP 2020 U.G. PROGRAMME (FROM SESSION 2024-25)

Faculty Name :

Programme Name

SEM -

	Paper name	Theory / Practical	Teaching Scheme						Examination Scheme						
			Theory	Practical	Total	Credit	Duration	Max. Marks			Minimum Marks				
								UA	CA	Total	Theory	Practical			
Core															
Major (DSC) (4+2) 6	Certificate in Python Programming	Theory	04			04	01 yrs	80	20	100	50				
		Practical	—	3+3	10	04		60	40	100		50			
Major Elective (DSE)															
Minor															
OE (2+2) 4															
VSC (2x1) 2															
SEC (2x1) 2															
VEC (2x1) 2															
AEC (2x1) 2															
IKS (2x1) 2															
Total Credit 20															
Total															