AMITY UNIVERSITY
UTTAR PRADESH

FORMAT FOR COURSE CURRICULUM

Course Title: The Joy of Computing using Python **Credit Units: 4**

Course Level: **UG** **Course Code:** **TO BE ISSUED**

L	T	P/S	SW/FW	TOTAL CREDIT UNITS
1			6	4

Course Objectives:

1. Learn Syntax and Semantics and create Functions in Python
2. Handle Strings and Files in Python
3. Understand Lists, Dictionaries and Regular expressions in Python
4. Implement Object Oriented Programming concepts in Python
5. Build Web Services and introduction to Network and Database Programming in Python

Pre-requisites: Student should be familiar with fundamental programming constructs in any programming language like C, C++ etc.

Course Contents/Syllabus:

Sr. No	
1	Motivation for Computing
2	Welcome to Programming!!
3	Variables and Expressions: Design your own calculator
4	Loops and Conditionals: Hopscotch once again
5	Lists, Tuples and Conditionals: Lets go on a trip
6	Abstraction Everywhere: Apps in your phone
7	Counting Candies: Crowd to the rescue
8	Birthday Paradox: Find your twin
9	Google Translate: Speak in any Language
10	Currency Converter: Count your foreign trip expenses
11	Monte Hall: 3 doors and a twist
12	Sorting: Arrange the books
13	Searching: Find in seconds
14	Substitution Cipher: What's the secret!!

15	**Sentiment Analysis: Analyze your Facebook data**
16	**20 questions game: I can read your mind**
17	**Permutations: Jumbled Words**
18	**Spot the similarities: Double game**
19	**Count the words: Hundreds, Thousands or Millions.**
20	**Rock, Paper and Scissor: Cheating not allowed!!**
21	**Lie detector: No lies, only TRUTH**
22	**Calculation of the Area: Don't measure.**
23	**Six degrees of separation: Meet your favorites**
24	**Image Processing: Fun with images**
25	**Tic tac toe : Let's play**
26	**Snakes and Ladders: Down the memory lane.**
27	**Recursion: Tower of Hanoi**
28	**Page Rank: How Google Works!!**

Student Learning Outcomes:

1. Examine Python syntax and semantics and be fluent in the use of Python flow control and functions
2. Demonstrate proficiency in handling Strings and File Systems
3. Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
4. Interpret the concepts of Object-Oriented Programming as used in Python
5. Implement exemplary applications related to Network Programming, Web Services and Databases in Python

Pedagogy for Course Delivery:

MOOC

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	End Term Examination
100	**-**	**100**

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	**Class Test**	**Home Assignment**	**Attendance**	**Viva**	
Weightage (marks)	**10**	**8**	**5**	**7**	**70**

Text Reading:

1. Charles R. Severance, “Python for Everybody: Exploring Data Using Python 3”, 1st Edition, Create Space Independent Publishing Platform, 2016.
2. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist”, 2nd Edition, Green Tea Press, 2015.
3. Reema Thareja, “Python Programming Using Problem Solving Approach”, Oxford university press, 2017

References:

1. Charles Dierbach, "Introduction to Computer Science Using Python", 1st Edition, Wiley India Pvt. Ltd. ISBN-13: 978-8126556014
2. Mark Lutz, “Programming Python”, 4th Edition, O’Reilly Media, 2011.ISBN-13: 978-9350232873
3. Wesley J Chun, “Core Python Applications Programming”, 3rd Edition, Pearson Education India, 2015. ISBN-13: 978-9332555365
4. Roberto Tamassia, Michael H Goldwasser, Michael T Goodrich, “Data Structures and Algorithms in Python”,1st Edition, Wiley India Pvt. Ltd, 2016. ISBN-13: 978- 8126562176

Reading:

- **NPTEL: - https://onlinecourses.nptel.ac.in/noc18_cs35/preview**