



ARSD College, University of Delhi

Lesson Plan

<i>Course Name : BA (Computer Applications)</i>						
<i>Semester</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Lecture (L)</i>	<i>Tutorial (T)</i>	<i>Practical (P)</i>	<i>Credit (C)</i>
<i>1</i>	<i>(BSC01)</i>	<i>Problem Solving Using Computers</i>	<i>4</i>			
<i>Teacher/Instructor(s)</i>		<i>Dr. V.S. Dixit</i>				
<i>Session</i>		<i>2020-21</i>				

Course Objective:

This course is designed as the first course in programming to develop problem solving skills. The course focuses on modularity, reusability, code documentation, and debugging skills. It also introduces the concept of object-oriented programming.

Course Learning Outcomes:

On successful completion of the course, students will be able to describe the components of a computer and the notion of an algorithm, apply suitable programming constructs and data structures to solve a problem, develop, document, and debug modular python programs, use classes and objects in application programs and to use files for I/O operations.

Lesson Plan:

Unit No.	Learning Objective	Lecture No.	Topics to be covered
1.	Computer Fundamentals and Problem Solving	1.	Basic Computer Organization
		2.	Memory
		3.	I/O Units
		4.	Problem solving using computer
		5	Notion of an algorithm.
		6	<i>Comparison between humane and computer</i>
		7	<i>Application of computers</i>
2.	Introduction to Python Programming	8	Python interpreter, using python as calculator
		9	python shell, indentation
		10	identifiers and keywords
		11	literals, strings
		12	arithmetic, relational and logical operators.
		13	<i>Associativity and precedence of operators</i>
3.	Creating Python Programs	14	Input and output statements
		15	defining functions, control statements default arguments, errors and exceptions.
		16	control statements
		17	default arguments
		18	<i>Errors</i>
		19	<i>Exceptions</i>
4.	Inbuilt Data Structures:	20	strings
		21	lists
		22	sets
		23	tuples
		24	built-in functions
		25	dictionary

		26	Discussion Session
5.	Object Oriented Programming	27	Basics of object-oriented programming
		31	Classes and objects
		32	Inheritance
		33	Polymorphism
		34	Examples
6.	Sorting and Searching	35-48	Different Sorting and searching techniques, Discussion with the students on case studies.

Evaluation Scheme:

No.	Component	Duration	Marks
1.	Internal Assessment		25
	• Quiz		
	• Class Test		
	• Attendance		
	• Assignment		
2.	End Semester Examination	3 hr	75

Details of the Course		
Unit	Contents	Contact Hours
1	Computer Fundamentals and Problem Solving: Basic Computer Organization: CPU, memory, I/O Units. Problem solving using computer, notion of an algorithm.	8
2	Introduction to Python Programming: Python interpreter, using python as calculator, python shell, indentation, identifiers and keywords, literals, strings, arithmetic, relational and logical operators.	8
3	Creating Python Programs: Input and output statements, defining functions, control statements default arguments, errors and exceptions.	8

4	Inbuilt Data Structures: strings, lists, sets, tuples, nested lists, built-in functions, dictionary and associated operation.	8
5.	Object Oriented Programming: Introduction to Classes, Objects and Methods, Standard Libraries, File handling through libraries.	8
6.	Sorting and Searching: Iterative and Recursive methods for searching and sorting	20
	<i>Total</i>	<i>60</i>

Suggested Books:

<i>Sl. No.</i>	<i>Name of Authors/Books/Publishers</i>	<i>Year of Publication/Reprint</i>
-1	Downey, A.B. (2008). Think Python–How to think like a Computer Scientist. Needham, Massachusetts : Green Tea Press.	2008
2	Urban, M. & Murach, J. (2018). Python Programming. Shroff.	2018
3	Gutttag, J. V. (2013). Introduction to computation and programming using Python. MIT Press.	2013
4	Liang, Y. D. (2013). Introduction to Programming using Python. Pearson	2013
<i>Mode of Evaluation:</i>		<i>Internal Assessment / End Semester Exam</i>

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