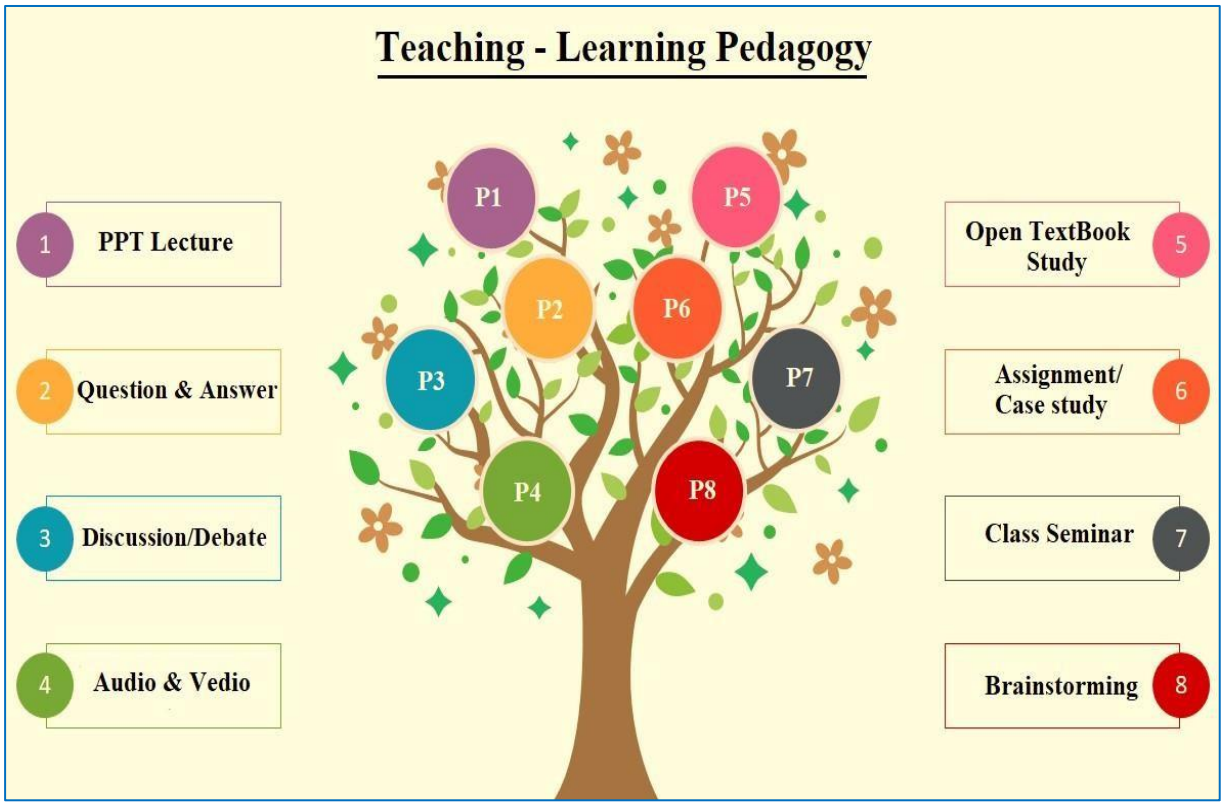
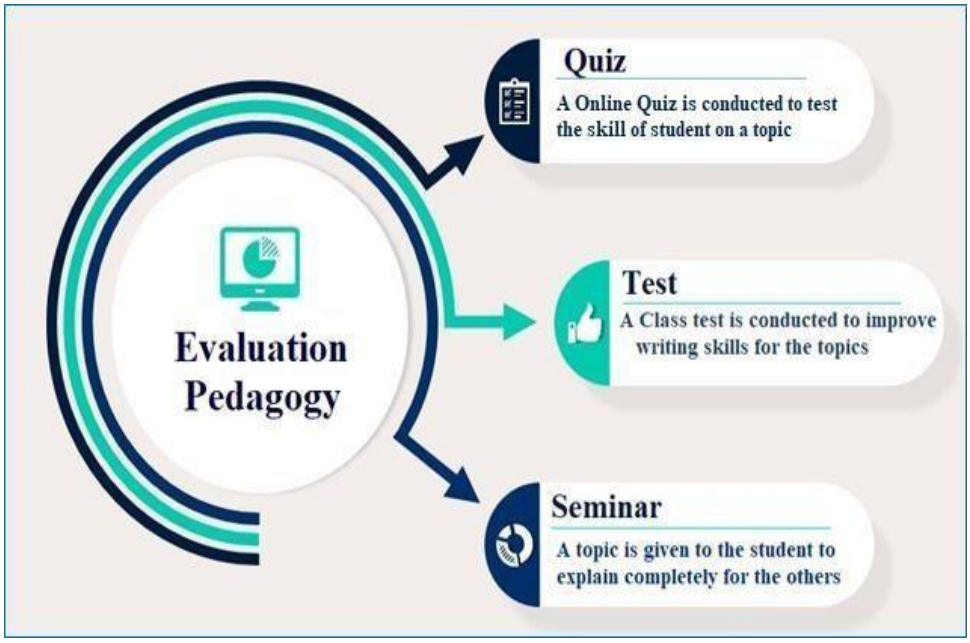
DEPARTMENT OF COMPUTER SCIENCE





Course:B.Sc AI	Year:I	Semester:II
Subject	PYTHON FOR DATA SCIENCE	
Units	1.Basics of Python 2.Functions and Modules 3. Data Structures 4. Object Oriented Programming concepts 5. Data Analysis	
Duration	**30hours**	
Learning Objectives	• To Understand Features and basic concepts of python. • To learn control structures in python and apply them to real world problems. • To implement functions and modules in python. • To understand data structures in python. oops concepts • To construct data and perform data analysis.	

Units	U1	U2	U3	U4	U5
HoursSplit:Total: 60	10	10	10	10	10

Resource Material:	**Study Material(Handouts):** **https://youtu.be/dhyyRAYx19w** **https://youtu.be/nznFtfgP2ks** **Reference Books:** 1. Python Programming Using Problem Solving Approach –Reema Thareja , Oxford University Press, ©2017 2. Pandas for Everyone (Python data Analysis)-Daniel Y.Chen, Pearson Addison Wesley Data and Analytics series,©2018. **YouTube Links:** **https://youtu.be/8egjI-p16u4** **https://youtu.be/0CVsGUQbSec** **Power Point Presentations:** **https://youtu.be/BZ_ObFC7NVA** **https://youtu.be/MK4Hw7ZwBXA**

UNIT	DESCRIPTION	PEDAGOGY	INTERNAL EVALUATION
I	Features of python, literal constants-numbers, variables, identifiers, data types, input operation, comments, operators, operations on strings, other data types, type conversion. Selection or conditional branching statements-if, if else , nested if, if elif else, loops or iterative statements-while, for, nested loops, break, continue, pass, else statement with loops.	P1,P2,P3	PQ,P6,PT
II	Functions-Definition and call, return statements, anonymous function- LAMBDA, recursive functions. Modules-Using existing modules, making own modules, packages in python, Names of standard library modules.	P1,P2,P3,P5	P6,PT
III	List-Accessing lists, updating lists, nested lists, basic list operations, list methods, loops in lists. Tuples-Creation, Accessing, updating, deletion in tuples and basic tuple operations. Sets-creation, set operations	P1,P2,P3,P5	PQ,PT
1V	Oops concept- Introduction, Classes and Objects, Class method Inheritance Introduction Inheriting classes in python Types of Inheritance, Error and Exception Handling	P1,P2,P3	PQ,P6,PT
V	Data preparation using pandas and series: pandas data frame basics, Creating your own data , Series, Data frames, Making changes to series and data frames Plotting: Matplotlib Introduction, Univariate plots-Histograms.	P1,P2,P3,P5	P6,PT