

**Calcutta Business School** 

Course Name	: Introduction to Python & its Applications in Business		
Course Code	: DM 21306		
	(30 sessions of 1.0 hrs. in Term III)		
Credit	: 3.0	Academic Year:	2020-2022
<b>Course Faculty</b>	: Dr. Indranil Ghosh		

**Background of the Course:** This course is an introduction to Python programming language and attempts to demonstrate its capabilities in solving practical business problems of paramount significance. This course intends to provide the students the opportunity to develop the skills necessary to create and use Python programming efficiently. Numerous practical examples will be discussed in conjunction fundamentals of Python throughout the course including defining variables, understanding data types, structures, conditional operators, loop, etc. Using a problem-solving approach, students will study Python programming framework in depth and understand their purposes in business environment.

**Course Description:** Key endeavor of this course is to provide the adequate skillsets in preparing and organize data in order to carrying out sophisticated analyses using python. The student will learn advanced techniques of Python for solving real world problems. Advanced data modeling tools will be discussed with related examples. Data visualization through advanced Python libraries will be covered in details.

**Course Outcome:** After successful completion this course, students will be able to apply knowledge and skills to develop Python driven models to solve real world business problems and perform appropriate data visualization for making decisions using the conventional and unconventional tools.

**Course Plan** 

Session	Торіс	Hours
<u> </u>	Industion to Duthous	
1.	<ul> <li>i) Declaring Variables, Conditional Statements, Generating Sequence Numbers, Control Flow Statements (Loops).</li> <li>ii) Functions (Inbuilt &amp; Customized)</li> <li>iii) Working with Collections (List, Tuples, Set, Dictionary) &amp; Strings</li> </ul>	(2.0)
2	Data Description with Python	(2.0+2.0+2.0)
	<ul> <li>i) Working with DataFrame, Importing &amp; Exporting Files.</li> <li>ii) Handling Missing Values, Transformation, Outlier Detection</li> <li>iii) Data Visualization and Introduction to salient Python packages for data analysis</li> </ul>	
	Case: Illustration with IPL Dataset	
3	Regression Analysis with Pythoni)Simple Linear Regressionii)Multiple Linear Regressioniii)Working with Categorical Variablesiv)Interpretation of ResultsCase: Modeling Auction Price in IPL	(4.0)
4.	Data Classification with Pythoni)Classification Overviewii)Binary Logistic Regressioniii)Measuring Accuracyiv)Other ModelsCase: Credit Modeling	(4.0)
5	Data Clustering using Python	(4.0)
	<ul> <li>i) Overview of Clustering</li> <li>ii) Measuring Similarity of Data</li> <li>iii) K-Means Clustering</li> <li>iv) Finding Optimal Number of Clusters</li> </ul> Case: Product Segmentation	

Books:

- 1. Python Cookbook: Recipes for Mastering Python 3: Brian K. Jones & David M. Beazley, O'Reilly India.
- 2. Learning Python: Mark Lutz, O'Reilly India.
- 3. Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython: William McKinney, O'Reilly India.
- 4. Machine Learning Using Python: Manoranjan Pradhan & U Dinesh Kumar, Wiley India.

## **Evaluation Pattern**

SI No	Details	Percentage
1	<b>Class Participation &amp; Attendance (Individual)</b>	10
2	Project Work	20
3	Individual Assignments	30
4	End Term	40