				Viva	2
				Modification	2
b)	**CCA**		**25**	b)	**CCA**		**10**
	i	Test Paper	5		i	Punctuality	3
		Model exam	10				
	ii	Assignment/ Book-Article review /field report	5		ii	Model exam	4
	iii	Seminar/ Viva-Voce	5		iii	Record	3

KU2DSCCSC112:   BASICS OF DATAANALYTICS

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC	100	**KU2DSCCSC113**	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5hrs.

Course Description:

This course introduces students to the fundamental concepts and techniques of data analytics. Introduces students to the Python programming language using an embedded

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programming environment. The modules explore if-statements and loops to illustrate concepts of flow-control and iteration and also some data visualization tools that helps in data analytics.

Course Prerequisite: NIL
Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Under stand the term data analytics and various steps included in data analytics	U
2	Understand the features of python as a tool for data analytics	U, A
3	Design programs using various python features like operators, control structures and other python objects.	U, An
4	Design programs using built-in modules in Python	U, C
5	Apply various visualization tools in python for data analytics.	U, A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	2		2			2
CO 2	2	3		2			
CO 3	3	3	2				2
CO 4	2	3	2				
CO 5	2	3	3	2			3

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**MODULE 1:**	

	1	Data analytics definition-steps in data analytics-types of data analytics-tools for data analytics-Career Opportunities in Data Analytics	15
	2	Features of Python, Different Methods to Run Python, Basic Elements (Objects, Expressions, Numerical Types, Strings, Variables),	
	3	Comments, Indentation in Python, Input and Output in Python, import function, Operators in Python	
	4	Branching (if, else, elif), Iteration (while, for), range and enumerate functions	

2	**MODULE 2:**	
1	Looping structures in python	
	2	Tuples, Lists, Dictionaries, Sets- Built-in methods of lists, sets and dictionaries	
	3	Mutable and Immutable Objects.	15
	4	Modules, Built-in Modules (math, statistics), Creating Modules	

3	**MODULE 3:** PYTHON MODULES FOR DATA ANALYTICS	
	1	Numpy module - Creating Arrays (array, zeros, ones, empty, linspace, arrange, random),	15
	2	Two-Dimensional Array (Indexing, Slicing, Iterating)	
	3	Pandas functions for data analytics- reading data-read_csv(), framing data- Series.to_frame(), cleaning data- drop_duplicates(),F `illing` `data` fillna()	
	4	Matplotlib functions-plot(), label(), bar(), scatter(), pie(),show()	

4	**MODULE 4**	
	1	Data Visualization using Python, matplotlib Module	
	2	pyplot, plot(), hist, scatter, bar charts	15

| | 3 | Formatting, figure(), subplot(), text(), xlabel(), ylabel(), title() | |
| | 4 | Plotting Simple Mathematical Functions (sin x, x2) | |

5	**Teacher Specific Module**	
	Directions	
	1. Write a Python program that will accept the base and height of a triangle and compute its area.	15
	2. Write a Python program to get the largest number from a list	
	3. Write a Python script to sort (ascending and descending) a dictionary by value.	
	4. Write a Python program to create a set	
	5. Write a Python program to create a union of sets.	
	6. Write a Python program to read a given CSV file as a list.	
	7. Write a Python programming to display a bar chart of the popularity of programming Languages. Use uniform color. Sample data: Programming languages: Java, Python, PHP, JavaScript, C#, C++ Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7	
	8. Write a Python programming to create a pie chart of gold medal achievements of five most successful countries in 2016 Summer Olympics. Read the data from a csv file. Sampledata: **medal.csv** country,gold_medal UnitedStates,46 GreatBritain,27 China,26 Russia,19 Germany,17	

Essential Readings:

1. Basic Python Programming for Beginners
by Dr. Marlapalli Krishna & S. Jaya Prakash Dr. Marlapalli Krishna, K. Varada Rajkumar
2. Learn Python Programming - by Fabrizio Romano

3. https://www.w3resource.com/

Assessment rubrics

Evaluation Type	Marks	Evaluation Type	Marks	Total

Lecture			75	Practical			25	100
a)	**ESE**		**50**	a)	**ESE**		**15**	
					Program code and execution		**8**	
					Output		**3**	
					Viva		**2**	
					Modification		**2**	
b)	**CCA**		**25**	b)	**CCA**		**10**	
	i	Test Paper	5		i	Punctuality	3	
		Model exam	10					
	ii	Assignment/ Book-Article review /field report	5		ii	Model exam	4	
	iii	Seminar/ Viva-Voce	5		iii	Record	3	