

## Department of Liberal Education Era University, Lucknow Course Outline Effective From: 2023-24

Name of the	B.A. / B.Sc. (LIBERA	AL EDUCA	TION)	Year/ Semester:	3	3 <sup>rd</sup> /5 <sup>th</sup>			
Program									
Course	Python	Course	CS301P	Туре:	P	ractical			
Name	Programming Lab	Code:							
Credits	(	01		<b>Total Practical Hours</b>	:	30			
Evaluation	Internal	10 Marks		End Term Exam:	15 Marks				
Spread	Continuous								
	Assessment:								
Type of Course		Core		C Creative	0	C Life Skill			
Course Objectives	<ul> <li>To provide a solid foundation in programming concepts and logic using Python as the primary language.</li> <li>To learn the syntax and semantics of the Python language, including built-in data structures (such as lists, dictionaries, and tuples), operators, modules, and file handling.</li> <li>To emphasize on problem-solving skills by presenting students with programming challenges and exercises.</li> </ul>								
<b>Course Outcomes (CO):</b> After the successful course completion, learners will develop following attributes:									
Course									
Outcome			At	tributes					
(CO)			11	th ibutts					
CO1	Develop a solid foundation in programming concepts and acquire proficiency in using								
	Python.								
CO2	Gain hands-on experience in writing Python code using correct syntax and effectively								
	utilizing various libraries and modules.								
CO3	Apply problem-solving techniques to solve programming challenges using Python.								
CO4	Perform data manipulation and analysis using Python libraries.								
Pedagogy	Interactive, discussion-based, student-centered, program outputs.								
Internal	Experiment-Writing and Conductance								
Evaluation	File Maintenance/ Laboratory Record								
Mode	Continuous Attendance and Participation								
Practical No	Experiments					Mapped CO			
1.	Programs	demonstrat	ing data	types variables and	4	CO1			
	expressions	acinonstrat	ing uata	types, variables, and	•	001			
	• Programs demonstrating the use of conditional								
	statements, loops, and arrays.								
2.	• WAP to demonstrate list, tuples, and dictionary (indexing 6 CO2								
	and iloc function).								
	Create funct	tions that perform arithmetic operations. Also,							
	create lambda function for the same.								
3.	• WAP of list comprehensions, dictionary comprehensions, 6 CO2. CO3								
	set comprehensions.								
	• WAP of n x d arrays and perform slicing and other								
	operation.								

Image: Create a Small game using the python mathematical packages.           CO-PO and PSO Mapping           CO         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PSO1         PSO2         PSO3         PSO4         PSO5         PSO5         PSO6           CO         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PSO1         PSO2         PSO3         PSO4         PSO5         PSO5         PSO6           CO1         2         1         1         2         2         1         2         3         2         1         1         2         2         1         1         2         2         2         1         1         2         2         1         1         2         2         1         1         2         2         1         1         2         <	4. 5.	<ul> <li>WAP of various mathematical and statistical functions.</li> <li>WAP to demonstrate classes and objects, inheritance, constructor, managed attributes.</li> <li>WAP to implement the Exception handling.</li> <li>WAP using matplotlib to create histograms, density plots, scatter plots etc.</li> </ul>							ce, ots,	8	CO4 CO3, CO4				
CO-PO and PSO Mapping           CO-PO and PSO Mapping           CO         POI         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PSO1         PSO2         PSO3         PSO4         PSO5         PSO6           CO1         2         1         1         1         2         1         2         2         1         2         3         2         1           CO2         2         3         1         1         2         2         1         2         3         2         1         1         2         2         2         1         1         2         2         2         1         1         2         2         2         1         1         2         2         1         1         2         2         2         2         1         1         1         1         3         2         1         1         1         3         2         1         1         1         2         2         1         1         1         3         2         1         1         1         3         2         1         1         2         2         1			•	• Create a Small game using the python mathematical											
CO-PO and PSO Mapping           C0         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PS01         PS02         PS03         PS04         PS05         PS06           C01         2         1         1         1         2         1         2         2         1         2         3         2         1         1         2         2         1         1         2         2         1         1         2         2         1         1         2         1         1         2         2         1         1         2         1         1         2         2         1         1         2         1         1         2         1         1         2         1         1         2         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         1         <				раск	ages.										
CO         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PS01         PS02         PS03         PS04         PS05         PS06           C01         2         1         1         1         2         1         2         1         2         3         2         1         1         2         3         2         1         1         2         2         1         1         2         2         1         1         2         2         1         1         2         2         1         1         2         2         1         1         2         2         1         1         2         2         2         1         1         2         2         1         1         2         2         1         1         2         2         1         1         2         2         1         1         2         1         1         2         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1	CO-P	O and I	PSO M	apping											
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Strong contribution-3,       Average contribution-2,       Low contribution-1,         Suggested Readings:       Image: Contribution approach, Reema Thareja, Oxford University Press, 2nd Edition, 2017         Books       Python for Data Analysis, Wes Mckinney, 1st edition, O'reilly media,2012.         E-       https://www.digimat.in/nptel/courses/video/106106126/L01.html         Resources       http://www.nitttrc.edu.in/nptel/courses/video/106106126/L02.html         Internal Practical Evaluation:       Marks         Experiment-Writing and Conductance       5         File Maintenance/       2         Laboratory Record       1         Viva-Voce       2         Total Marks       10	CO3	3	2	3		1	1	2	2	2	2	2	1	2	2
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2. Python for Data Analysis, Wes Mckinney, 1st edition, O'reilly media,2012.         E- <ul> <li>https://www.digimat.in/nptel/courses/video/106106126/L01.html</li> <li>http://www.nitttrc.edu.in/nptel/courses/video/106106126/L02.html</li> </ul> Internal Practical Evaluation:       Marks         Component       Marks         Experiment-Writing and Conductance       5         File Maintenance/       2         Laboratory Record       1         Participation       1         Viva-Voce       2         Total Marks       10	Books			Univ	ersitv F	Press. 2	nd Edit	ion. 201	7		·		5		
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	Total Marks 10														

<b>Course created</b>	by:	Dr.	Mohd	Haleem
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Signature:

## Approved by: Prof. Mansaf Alam

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