



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF COMPUTER SCIENCE & DATA SCIENCE TEACHING PLAN

Course Code	Course Title	Semester/Regulation	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
	PYTHON PROGRAMMING	II / (R23)	CSE&DS	2	2024-2025	30-7-2024
COURSE OBJECTIVES						
1	Introduce core programming concepts of Python programming language.					
2	Demonstrate about Python data structures like Lists, Tuples, Sets and dictionaries					
3	Implement Functions, Modules and Regular Expressions in Python Programming and to create practical and contemporary applications using these					
COURSE OUTCOMES						
1	Understand the historical context and evolution of Python.					
2	Develop problem-solving skills through hands-on exercises and projects involving functions, strings, and lists.					
3	Apply built-in functions, methods, and constructors effectively to manipulate dictionaries, tuples, and sets.					
4	Understand and implement OOP concepts such as classes, objects, inheritance, Polymorphism, and encapsulation.					
5	Apply Python's libraries and modules effectively to address real-world data science challenges.					
UNIT	Out Comes / Bloom's Level	Topics No.	Topics/ Activity	Text Book/ Reference	Contact Hour	Delivery Method
I	CO – 1	1.1	History of Python Programming Language, Thrust Areas of Python	R1,R2	1	chalk ,talk
		1.2	Installing Anaconda Python Distribution	R1,R2	1	chalk ,talk
		1.3	Installing and Using Jupyter Notebook.	R1,R2	1	chalk ,talk
		1.4	Python Programming Language: Identifiers, Keywords	R1,R2	1	chalk ,talk
		1.5	Python Programming Language: Statements and Expressions & Variables	R1,R2	2	chalk ,talk
		1.6	Python Operators	R1,R2	1	chalk ,talk
		1.7	Precedence and Associativity	R2,R3	1	chalk ,talk
		1.8	Python Data Types & Indentation Problem	R1,R3	2	chalk ,talk
		1.9	Python Comments, Reading Input, Print Output, Type Conversions, the type ()	R1,R2	1	chalk ,talk



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			Function and Is Operator,			
		1.10	Dynamic and Strongly Typed Language.	R2,R3	1	chalk ,talk
		1.11	Control Flow Statements	R1,R3	2	chalk ,talk
Total:					14	
II	CO - 2	2.1	Python: Built-In Functions Commonly Used Modules	R2,R3	1	chalk ,talk
		2.2	Function Definition and Calling the function, return Statement and void Function	R2,R3	2	chalk ,talk
		2.3	Scope and Lifetime of Variables	R1,R2	2	chalk ,talk
		2.4	Default Parameters, Keyword Arguments, *args and **kwargs, Command Line Arguments.	R1,R2	1	chalk ,talk
		2.5	Strings: Creating and Storing Strings, Basic String Operations, Accessing Characters in String by Index Number	R1,R2	2	chalk ,talk
		2.6	String Slicing and Joining, String Methods, Formatting Strings	R1,R2	1	chalk ,talk
		2.7	Lists: Creating Lists, Basic List Operations,	R1,R2	1	chalk ,talk
		2.8	Indexing and Slicing in Lists,	R2,R3	1	chalk ,talk
		2.9	Built-In Functions Used on Lists, List Methods, del Statement	R2,R3	1	chalk ,talk
Total:					12	
III	CO - 3	3.1	Dictionaries		1	chalk ,talk
			Creating Dictionary			
		3.2	Accessing and Modifying key:value Pairs in Dictionaries	R2,R3	1	chalk ,talk
		3.3	Built-In Functions Used on Dictionaries	R2,R3	2	chalk ,talk
		3.4	Dictionary Methods, del Statement	R2,R3	2	chalk ,talk
		3.5	Tuples and Sets: Creating Tuples, Basic Tuple Operations	R2,R3	2	chalk ,talk
		3.6	tuple() Function, Indexing and Slicing in Tuples	R2,R3	2	chalk ,talk
		3.7	Built-In Functions Used on Tuples	R1,R2	1	chalk ,talk
		3.8	Relation between Tuples and Lists	R1,R2	1	chalk ,talk
	3.9	Relation between Tuples and Dictionaries, Using zip() Function,	R1,R2	2	chalk ,talk	



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		3.10	Sets, Set Methods, Frozenset.	R1,R2	1	chalk ,talk
Total					15	
IV	CO – 4	4.1	Types of Files, Creating & Reading Text Data	R2,R3	2	chalk ,talk
		4.2	File Methods to Read and Write Data	R2,R3	2	chalk ,talk
		4.3	Reading & Writing Binary Files, Pickle Module	R2,R3	1	chalk ,talk
		4.4	Reading and Writing CSV Files,.	R2,R3	1	chalk ,talk
		4.5	Python os and os.path Modules	R2,R3	2	chalk ,talk
		4.6	Object-Oriented Programming: Classes and Objects, Creating Classes in Python, Creating Objects in Python,	R2,R3	1	chalk ,talk
		4.7	Constructor Method, Classes with Multiple Objects	R2,R3	1	chalk ,talk
		4.8	Class Attributes Vs Data Attributes, Encapsulation,	R2,R3	1	chalk ,talk
		4.9	Inheritance, Polymorphism	R1,R3	1	chalk ,talk
Total					12	
V	CO-5	5.1	Introduction to Data Science	R1,R2	2	chalk,talk
		5.2	Functional Programming	R1,R2	2	chalk,talk
		5.3	JSON,XML	R1,R2	2	chalk,talk
		5.4	Numpy with Python	R1,R2	2	chalk,talk
		5.5	Example for Numpy	R1,R2	2	chalk,talk
		5.6	Pandas with Python	R1,R2	2	chalk,talk
Total					12	
CUMULATIVE PROPOSED PERIODS					65	
Text Books:						
S.No.	Author	Book Title	Publication Year			
1	Mark Lutz,	Programing Python ,4 th Edition,	O'Reilly Media,2011			
2	Clive Campbell,	Python Programming :The ultimate Guide from Beginners to Expert,	2019			



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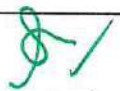
Reference Books:

S.No.	
1	Gowrishankar S, Veena A. Introduction to Python Programming, CRC Press, 2019
2	S Sridhar, J Indumathi, V M Hariharan, Python Programming, 2 nd Edition, Pearson, 2024
3	Y. Daniel Liang, Introduction to Programming Using Python, Pearson, 2017

Web Details:

<https://www.coursera.org/learn/python-for-applied-data-science-ai>
<https://www.coursera.org/learn/python?specialization=python#syllabus>
<https://www.python.org>
<https://www.geeksforgeeks.org/>

	Name	Signature with Date
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