SWARNANDHRA

College of Engineering & Technology
(Autonomous)
Narsapur - 534 280.

DEPARTMENT OF COMPUTER & SCIENCE ENGINEERING

TEACHING PLAN

Course Code	Course Title	Course / Semester	Branches/Section	Contact Hrs/Week	Academic Year
16CS7E06	Python Programming	IV B.Tech / VII	CSE – A, B & Shift	4	2020-21

COURSE OUTCOMES:

At the end of the course students are able to

- **CO1:** Observe the high- performance programs designed to strengthen the practical expertise. **K1**
- **CO2:** Understand and apply the concepts of data structures, functions, packages and modules. **K2**
- **CO3:** Analyze the importance of object oriented programming over structured programming. **K4**
- **CO4:** Focus on standard library statements in real time application development. **K4**
- **CO5:** Classify and analyze the data with support to advanced packages. **K4**
- **CO6:** Use machine learning concepts with python. **K3**

Week No	Out Comes	UNIT I Topics/Activity	Text Book Reference	Contact Hours	Delivery Method
1	**CO1:** Observe the high-performance programs designed to strengthen the practical expertise. (**K1**)	1.1. Introduction History of Python	T1,R2	1	Chalk & Board, PPT, Assignment, Test
		1.2. Need of Python Programming	T1, R2		
		1.3. Applications Basics of Python Programming Using the REPL	T1,R2	1	
		1.4. Running Python Scripts	T1	1	
		1.5. Variables, Assignment, Keywords	T1, T2	1	
2		1.6. Input-Output, Indentation	T1,R1	1	
		1.7. Types: Integers, Strings, Booleans	T1,T2	1	
		1.8. Arithmetic Operators	T1,R3	1	
		1.9. Comparison (Relational) Operators	T1,R1	1	
3		1.10. Assignment and Logical Operators	T1,R2	1	
		1.11. Bitwise and Membership Operators	T1,R3	1	
		1.12. Identity Operators, Expressions and order of evaluations	T1,T2		

Assignment Questions:

1. Explain about keywords used in Python. K2
2. Explain about iteration statements with examples. K2
3. Explain Python bitwise operators with example. K3

Model Paper Questions:

1. List out the applications of Python Programming language. K3
2. Why need for Python programming and briefly explain Integer, String and Boolean Data types with examples. K3
3. Explain Logical Operators, Bitwise Operators and write example programs using these operators K3

Week No	Out Comes	UNIT II Topics/Activity	Text Book Reference	Contact Hours	Delivery Method
	CO2: Understand and apply the concepts of data structures, functions, packages and modules. (**K2**)	2.1. Control Flow: if, if-elif-else	T1,T2	1	Chalk & Board, PPT, Assignment, Test
		2.2. for, while	T1,R3	1	
4		2.3. break, continue, pass	T1,R2	1	
		2.4. Data Structures: List Operations	T1,T2	1	
		2.5. Slicing, Methods, Tuples, Sets	T1,T2	1	
		2.6. Dictionaries, Sequences, Comprehensions	T1,T2	1	
5		2.7. Defining Functions, Calling Functions, Passing Arguments	T1,T2	1	
		2.8. Keyword, Default and length arguments	T1,R3	1	
		2.9. Anonymous and Fruitful Functions	T1,R2	1	
		2.10. Creating modules, import statement, from Import statement, name spacing	T1,T2	1	
6		2.11. Introduction to PIP, Installing Packages via PIP	T1,T2	1	
		2.12. Using Python Packages	T1,T2	1	

Assignment Questions:

1. Compare fruitful and void functions. K4
2. Briefly discuss about Python packages. K2
3. Explain about required and variable-length arguments. K3

Model Paper Questions:

1. Understand Function in Python with and without return type. K2
2. Write the syntax for if else and for loop and write program to find max with if-else and sum of N-numbers using FOR loop K3
3. Define Lists and Tuples using both methods with symbols and constructors and Operations insert, delete, sort, and append items on these structures K1

Week No	Out Comes	UNIT III Topics/Activity	Text Book Reference	Contact Hours	Delivery Method
6	**CO3:** Analyze the importance of object oriented programming over structured programming. (**K4**)	3.1. Classes	T1,T2	1	Chalk & Board, PPT, Assignment, Test
		3.2. self-variable	T1,T2	1	
		3.3. Methods,	T1,R2	1	
7		3.4. Constructor Method	T1,R2	1	
		3.5. Inheritance	T1,R3	1	
		3.6. Overriding Methods	T1,T2	1	
		3.7. Data Hiding	T1,T2		
8		3.8. error vs Exception	T1,T2	1	
		3.9. Handling Exception	T1,R2	1	
		3.10. try except block	T1,T2	1	
		3.11. Raising Exceptions	T1,T2		
		3.12. User Defined Exceptions	T1,T2	1	

Assignment Questions:

1. Explain creating classes in Python with examples. K2
2. Explain inheritance class with suitable example. K3
3. Write the overview of OOP terminology. K3

Model Paper Questions:

1. Define error and exception. K1
2. Explain handle exceptions in python and give examples with code K3
3. Discuss the object oriented features in Python programming language. K2

9	**MID-I Examinations**

Week No	Out Comes	UNIT IV Topics/Activity	Text Book Reference	Contact Hours	Delivery Method
10	**CO4:** Focus on standard library statements in real time application development. (**K4)**	4.1. Operating System Interface	T1,T2	1	Chalk & Board, PPT, Assignment, Test
		4.1.1. OS functions	T1,T2	1	
		4.2. String Pattern Matching	T1,T2,R2	1	
		4.2.1. String functions	T1,R2	1	
11		4.3. Mathematics	T1,T2	1	
		4.3.1. Math functions	T1,T2	1	
		4.4. Internet Access	T1,R1,R2	1	
		4.4.1. smtlib	T1,T2	1	
12		4.5. Dates and Times	T1,T2	1	
		4.5.1. Date module	T1,T2		
		4.5.2. Time module	T1,R2,R3	1	
		4.5.3. Calendar module	T1,T2	1	
		4.6. Data Compression	T1,T2,R3	1	

Assignment Questions:

1. Explain about Operating System Interface functions with suitable examples. K3
2. Determine a String Pattern Matching with an examples. K3
3. Discuss about Internet Access and explain about its supporting package. K3

Model Paper Questions:

1. Outline about data compression K4
2. Explain various String pattern matching functions in Python. K3
3. Explain the following: i) Calendar module ii) String Pattern Matching K3

Week No	Out Comes	UNIT V Topics/Activity	Text Book Reference	Contact Hours	Delivery Method
13	**CO5:** Classify and analyze the data with support to advanced packages. (**K4)**	5.1. Installing Numpy	T1,T2,T5	1	**Chalk & Board, PPT, Assignment, Test**
		5.2. Matplotlib	T1,R2,T5	1	
		5.3. SciPy	T1,R3,T5	1	
		5.4. Pandas Packages	T5,R1	1	
14		5.5. Scipy-Linear Algebra	T1,R1,T5	1	
		5.6. Polynomials	T5,R1	1	
		5.7. Numpy-Array Indexing	T5,R3	1	
		5.8. Pandas-Dataset	T5,R3	1	
15		5.9. Data Frames	T1,T5,R1	1	
		5.10. Matplotlib-Visualization Representation,	T1,T5	1	

Assignment Questions:

1. Determine the polynomials in python. K3
2. Briefly explain about Scipy package with suitable example. K3
3. Briefly explain about Matplotlib-visualization with an example. K3

Model Paper Questions:

1. Determine the Matplotlib library in python and list out functions of Matplotlib library. K3
2. Briefly explain Numpy package? Write a program to find the squares of a list of numbers. K3
3. Briefly explain Pandas package? Create a Data frame for employees with eno,ename & sal. K3

Week No	Out Comes	UNIT VI Topics/Activity	Text Book Reference	Contact Hours	Delivery Method
15	**CO6:** Use machine learning concepts with python. (**K3)**	6.1. Introduction	T3,T4	1	Chalk & Board, PPT, Assignment, Test
		6.2. Concepts of Learning-Supervised	T3,T4	1	
16		6.3. Unsupervised	T3,T4	1	
		6.4. Semi-Supervised	T3,T4	1	
		6.5. Data Preprocessing	T3,T4	1	
		6.6. Analysis and Visualization	T3,T4	1	
17		6.7. Applications: Weather Forecasting	T3,T4	1	
		6.7.1. application process examples	T3,T4	1	
		6.8. Trading stocks and derivatives	T3,T4	1	
		6.8.1. case study	T3,T4	1	

Assignment Questions:

1. Briefly describe about the supervised learning with an example. K3
2. Briefly describe about the semi-supervised learning with an example. K3
3. Apply data preprocessing with Python modules K4

Model Paper Questions:

1. List out machine learning techniques. K3
2. List and explain the various visualization methods. K3
3. Analyze Weather forecasting data and visualize the results with Python modules K4

Total Hours:	**64**
18	**MID-II Examinations**
19 20	**Preparation and End Examinations**
21 22	**End Theory Examinations**

Advanced Topics:

1. Reg Expressions validation using python.
2. Design an application using CGI Programming
3. Configure Database connectivity using python
4. Sending Email using python packages
5. Sending SMS using python packages
6. Tweet a message in twitter using python packages.
7. Store a particular dataset to cloud.
8. Retrieve and display cloud data into console.
9. Implement Multithreading concepts using python programming.

TEXT BOOKS

T1: Learning Python, Mark Lutz, Orielly-2019.
T2: Python Programming: A Modern Approach, Vamsi Kurama, Pearson-2018
T3: Introduction to Machine Learning with Python, by Andreas Muller-2017.
T4: Python Machine Learning: Introduction to Machine Learning With Python, Frank Millstein-2015.
T5: Python Data Science Handbook, Jake VanderPlas-2017.

Reference Books:

R1: Think Python, Allen Downey, Green Tea Press-2011.
R2: Core Python Programming, W.Chun, Pearson-2013.
R3: Introduction to Python, Kenneth A. Lambert, Cengage-2012.

WEB SITE LINKS:

1. https://www.python.org/
2. https://realpython.com/start-here/
3. https://www.w3schools.com/python/
4. https://www.roseindia.net/programming/tutorials/PythonTutorials.shtml
5. https://www.tutorialspoint.com/python/

S. No.	Course Lecturers	Branch & Section
1	Mr. Dileep Kumar K	CSE- A, B & Shift
Course Coordinator		Mr. Dileep Kumar K

FACULTY **HEAD OF THE DEPARTMENT** **PRINCIPAL**