Department of Computer Science (PG)

Value-Added Course

VACCSDS22 – WEB FRAMEWORK FOR DATA SCIENCE

Code	Title of The Paper	Hours
VACCSDS22	Web Framework For Data Science	30

Course Learning Outcomes:
- To understand the basic concepts of Object Oriented Python.
- To describe about Database Programming and Client-Server Programming with different database operations.
- To design GUI Applications in Python by using widgets.
- Express basic numerical processing using Python.
- To study about Data Visualization using Python.

Unit I

Object Oriented Python: Assertion – Decorators – Generators – Iterators - Threading in Python: Creation, Execution of threads using threading module.

Unit II

Database programming using Python: Connecting to a database (SQLite) using Python - Sending DML and DDL queries and processing the result from a Python Program - Network programming using Python: An introduction to client-server programming – Basics of TCP and UDP protocols - Introduction to socket programming – Building an HTTP client and server.

Unit III

GUI in Python: Introduction to GUI building libraries – Widgets: Button, Canvas, Check button, Entry, Frame, Label, List box, Menu button, Menu, Message, Radio button, Scale, Scrollbar, Text, Toplevel, Spin box, Paned Window, Label Frame, tkMessageBox - Basic image processing using Python: Introduction to digital image processing – Basic operations on an image: Crop, Scale, Rotate, Flip, Changing Contrast, Brightness and Color, Edge detection, Blur and Sharpening.

Unit IV

Basic numerical processing using Python: Introduction to numpy – Creation of vectors and matrices - Matrix manipulation – Basing data analysis using Python: Introduction to Pandas – Pandas data structures – Series and Data Frame - Data wrangling using pandas: Loading a dataset into a data frame, Selecting Columns from a database, Selecting rows from a data frame, Adding new data in a data frame, Deleting data from a data frame.

Unit V

Basic Data Visualization using Python: Introduction to Matplotlib – Scatter plot – Line Plot – Bar Chart – Histogram – Box plot – Regular Expression: RE package – Web Scrapping: Beautiful Soup

Book for Study:

1. LjubomirPerkovic, "Introduction to Computing Using Python: An Application Development Focus", 2nd Edition, John Wiley & Sons, 2012

Books for Reference:

1. Martin C. Brown, "Python: The Complete Reference", McGraw Hill Education; Fourth Edition, March 2018.
2. N. Ryan Marvin, Amos Omondi - "Python Fundamentals", 1st Edition, Packt Publishing, 2018.
3. Magnus Lie Hetland - "Beginning Python - From Novice to professional", 3rd Edition A Press Publishers, 2008.

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1. www.freebookcentre.net/programming.../Python-Language-Reference.html
2. www.freebookcentre.net/.../Introduction-to-Python-Programming-Course- Notes.html

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