Detailed Syllabus
Lab-wise Breakup

Course Code	15B17CI575	**Semester** ODD **(specify Odd/Even)**	**Semester** 5th **Session** 2023-2024 **Month from** July 23 **to** December 23
Course Name	Open Source Software Lab		
Credits	1	**Contact Hours**	2 hours

Faculty (Names)	**Coordinator(s)**	J62: Ms. Deepti J128: Prof. Chetna Gupta
	Teacher(s) (Alphabetically)	J62: Dr. Alka Singhal, Ms. Purtee Kohli, Dr. Sonal, Dr. Vikash J128: Prof. Charu, Dr Mukta Goyal

COURSE OUTCOMES		**COGNITIVE LEVELS**
C375.1	Demonstrate the working of Git repository hosting service through git commands to manage files, support version control and contribute to open source community by providing enhanced versions.	Understand level (Level 2)
C375.2	Implement python programs using lists, tuples, dictionaries, functions, Numpy, SciPy and Matplotlib.	Apply Level (Level 3)
C375.3	Develop python programs to scrap and process data using Beautiful Soup, pandas and MongoDB.	Apply Level (Level 3)
C375.4	Analyze baseline methods for pre-processing, clustering and classification algorithms using scikit-learn python libraries.	Analyze Level (Level 4)
C375.5	Build J2EE Programs using JDBC Connectivity with SQL Database and Apache/ Glassfish as web servers.	Create Level (Level 6)

Module No.	**Title of the Module**	**List of Experiments**	**CO**	**#Labs**
1.	Introduction to GitHub & Sustainable Development Goals (SDG's)	● Read and explore the Github and Sustainable Development Goals. ● Create a simple program and upload it on Github. ● Extract one open source project from Github. Perform the reverse engineering of the same.	CO1	1
2.	Introduction To Python	● Making use of lists, tuples, and dictionaries, indexing and slicing to access data	CO2	1
3.	Python	● Create user defined functions using built-in functions such as **filter (f, a)** from python libraries.	CO2	2
4.	Numpy, SciPy, Matplotlib (Python)	● Write python programs using various functions of Numpy, SciPy and Matplotlib library.	CO2	2
5.	Beautiful Soup (Python), Pandas, MongoDB	● Write a program using Beautiful Soup for scrapping data from web, store in csv files and process them. ● Write a program for processing data stored in MongoDB using Pandas.	CO3	2

6.	Java Script, Java Servlet and Java Server Pages.	● Write programs for building web-pages using java script. ● Buildweb-based applications using server-side programming – Java Server Pages (JSP) and Java Servlet.	CO5	1
7.	Scikit-Learn (Python)	● Write python programs for data analysis, feature engineering, clustering and classification.	CO4	2

Evaluation Criteria

Components	**Maximum Marks**
LabTest1	20
LabTest2	20
Evaluation /Quiz	30
Attendance	15
PBL	15
Total	**100**

Project Based Learning: The course emphasizes on skills required to develop open-source projects. The use of Python, its libraries and frameworks allow students to create scripts to automate tasks. The skills acquired in open-source software lab helps students in employability and improves the possibility of career opportunities in the field of Data Science, Web Development, Application Development and Machine Learning.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	https://guides.github.com/
2.	https://sustainabledevelopment.un.org/
3.	Python Cookbook by David Beazley and Brian K. Jones
4.	Head First Servlets & Java Server Pages by Bryan Basham, Kathy Sierra, and Bert Bates
5.	Python for Data Analysis by Wes McKinney