**Baderia Global Institute of Engineering and Management, Jabalpur**



**CSE Specialization in Data Science**

**4th Semester**

Practical File for the Lab of

Python for Data Science

CD-406

Student Details

|  |  |
| --- | --- |
| Enrolment Number |  |
| Name |  |

Submitted to

Prof. Zohaib Hasan

(Jan-Jun 2024)

**Python for Data Science** **Lab Manual**

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# **Vision and Mission of the Institute**

**Vision of Institute:**

Transforming Life by providing professional education with excellence.

**Mission of Institute:**

**a) Quality Education:** Providing Education with quality and shaping up Technocrats and budding managers with a focus on adapting to changing technologies.

**b) Focused Research & Innovation:** Focusing on Research and Development and fostering Innovation among the academic community of the Institution.

**c) People Focused:** Accountable and committed to institutional operations for effective functioning by Faculty members, Staff and Students.

**d) Holistic Learning:** Focus on conceptual learning with practical experience and experiential learning with strong Industrial connects and collaborations.

**e) Service to Society**: Providing Technical and Managerial services to society for betterment of their quality of life with best of the skills, compassion and empathy.

# **Vision and Mission of the Department**

**Vision**

Transforming life of the graduates by providing excellent education in the field of Computer Science & Engineering.

**Mission**

1. Create student centric learning ambience so as to produce graduates who are well informed about latest technological trends and advancement in the world of computing, technology and research.

2. Produce professionals who are capable to work in diversified fields, find workable solution to complex problems with awareness and concern for society and environments.

3. Continuously upgrade faculty through trainings so that they function effectively.

4. Encourage industry institute collaborations through consultancies and research, helping students to have conceptual learning.

# **Program Outcomes**

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems:** Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling to complex engineering activities, with an understanding of the limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

# **Course Outcome**

**CO1**. Demonstrate proficiency in Python as a programming language, data structures and object oriented concepts in python.

**CO2**. Perform numerical operations using NumPy library.

**CO3**. Perform data wrangling operations like, merge, reshape, pivot, transform, aggregation, and group-wise operations using pandas library

**CO4:** Visualize data using matplotlib and seaborn libraries.

List of Experiments

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Experiment** | **Date of Completion** | **Sign** |
| **Exp 1** | Introduction to Python Programming Language |  |  |
| **Exp 2** | Numerical operations using Numpy |  |  |
| **Exp 3** | Data Wrangling using Pandas Library |  |  |
| **Exp 4** | Data Visualization using Matplotlib Library |  |  |
| **Exp 5** | Data Visualization using Seaborn Library |  |  |