**GE8161  PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY L T P C    0 0 4 2**

**OBJECTIVES:**

* To write, test, and debug simple Python programs.
* To implement Python programs with conditionals and loops.
* Use functions for structuring Python programs.
* Represent compound data using Python lists, tuples, dictionaries.
* Read and write data from/to files in Python.

LIST OF PROGRAMS:

1. Compute the GCD of two numbers.

2. Find the square root of a number (Newton‘s method)

3. Exponentiation (power of a number)

4. Find the maximum of a list of numbers

5. Linear search and Binary search

6. Selection sort, Insertion sort

7. Merge sort

8. First n prime numbers

9. Multiply matrices

10. Programs that take command line arguments (word count)

11. Find the most frequent words in a text read from a file

12. Simulate elliptical orbits in Pygame

13. Simulate bouncing ball using Pygame

OUTCOMES:

Upon completion of the course, students will be able to:

• Write, test, and debug simple Python programs.

• Implement Python programs with conditionals and loops.

• Develop Python programs step-wise by defining functions and calling them.

• Use Python lists, tuples, dictionaries for representing compound data.

• Read and write data from/to files in Python

TOTAL: 60 PERIODS

PLATFORM NEEDED

Python 3 interpreter for Windows/Linux

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| **Ex. No** | ***DATE*** | **Name of the Experiment** |
| 1 | 26.08.2019 | Compute the GCD of two numbers. |
| 2 | 31.08.2019 | Find the square root of a number (Newton‘s method) |
| 3 | 09.09.2019 | Exponentiation (power of a number) |
| 4 | 16.09.2019 | Find the maximum of a list of numbers |
| 5 | 23.09.2019  27.09.2019 | Linear search and  Binary search |
| 6 | 05.10.2019  07.10.2019 | Selection sort,  Insertion sort |
| 7 | 11.10.2019 | Merge sort |
| 8 | 14.10.2019 | First n prime numbers |
| 9 | 18.10.2019 | Multiply matrices |
| 10 | 21.10.2019 | Programs that take command line arguments (word count) |
| 11 | 25.10.2019 | Find the most frequent words in a text read from a file |
| 12 | 1.11.2019 | Simulate elliptical orbits in Pygame |
| 13 | 2.11.2019 | Simulate bouncing ball using Pygame |

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| **download** | LESSON PLAN | *BRANCH:CIVIL-A&T* ***SEMESTER :01***  **YEAR: DEC2019** |
| Sub Code: GE8161Sub Name: PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY |

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### DEPARTMENT OF CIVIL ENGINEERING

http://www.aubit.edu.in/assets/img/vision.gif

The department vision is to impart strong fundamentals and applied research for international needs to serve building industry and society through innovative solutions.

http://www.aubit.edu.in/assets/img/mission.gif

To provide the State-of-art knowledge to students in Civil Engineering

To impart practical knowledge and industrial exposure for thorough understanding the subject.

To provide multidisciplinary solutions to improve quality of life and the value of investments in infrastructure; and educational efforts that promote sustainability, eco-responsible design and environmental engineering.

**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) :**

I.To prepare students for successful careers in Civil Engineering field that meets the needs of Indian and multinational companies.

II. To develop the confidence and ability among students to synthesize data and technical concepts and thereby apply it in real world problems.

III. To develop students to use modern techniques, skill and mathematical engineering tools for solving problems in Civil Engineering.

IV. To provide students with a sound foundation in mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyse engineering problems and to prepare them for graduate studies.

V. To promote students to work collaboratively on multi-disciplinary projects and make them engage in life-long learning process throughout their professional life.

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**PROGRAMME OUTCOMES (POs):**

On successful completion of the programme,

1. Graduates will demonstrate knowledge of mathematics, science and engineering.

2. Graduates will demonstrate an ability to identify, formulate and solve engineering problems.

3. Graduate will demonstrate an ability to design and conduct experiments, analyze and interpret data.

4. Graduates will demonstrate an ability to design a system, component or process as per needs and specifications.

5. Graduates will demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks.

6. Graduate will demonstrate skills to use modern engineering tools, software and equipment to analyze problems.

7. Graduates will demonstrate knowledge of professional and ethical responsibilities.

8. Graduate will be able to communicate effectively in both verbal and written form.

9. Graduate will show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues.

10. Graduate will develop confidence for self education and ability for life-long learning.

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**UNIVERSITY COLLEGE ENGINEERING**

**BHARATHIDASAN INSTITUTE OF TECHNOLOGY CAMPUS**

**TIRUCHIRAPPALLI – 620024**

###### SUB CODE : GE8161 BRANCH: CIVIL-A & Tamil

**SUB NAME :** **PROBLEM SOLVING AND PYTHON** **SEMESTER:01**

**PROGRAMMING LABORATORY**

**FACULTY** : C.SURESHKUMAR

**YEAR** :NOV/ DEC-2019

**COURSE OUTCOME:**

**CO1:** Write, test, and debug simple Python programs.

**CO2:** Implement Python programs with conditionals and loops.

**CO3:** Develop Python programs step-wise by defining functions and calling them.

**CO4:** Use Python lists, tuples, dictionaries for representing compound data.

**CO5:** Read and write data from/to files in Python

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**MAPPING OF COURSE OUTCOME AGAINST PROGRAMME EDUCATIONAL OBJECTIVES**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **PEO 1** | **PEO 2** | **PEO 3** | **PEO 4** | **PEO 5** |
| **CO 1** | S | A |  |  |  |
| **CO 2** | A | A |  |  |  |
| **CO 3** |  |  |  | A |  |
| **CO** 4 |  | A |  | S |  |
| **CO 5** |  |  |  | A |  |

**MAPPING OF COURSE OUTCOME AGAINST PROGRAMME OBJECTIVES**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** |
| **CO 1** | S | S |  | S | S |  |  |  |  |  |
| **CO 2** |  | A | A |  |  |  |  |  |  |  |
| **CO 3** |  |  |  | S |  |  | A |  |  |  |
| **CO** 4 | S |  |  |  | A |  |  |  |  |  |
| **CO 5** |  |  |  |  |  | S |  | A | S | A |

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