Report on the

Training program on "Python Programming to Solve Scientific and Physical Problems"

Organized by:

Department of Physics
Kalyani Mahavidyalaya

Duration

07.06.2019 to 13.06.2019

Summary of the Training Program

The Department of Physics of Kalyani Mahavidyalaya in collaboration with IQAC has organized a 36-hour-longtraining programme on Python Programming starting from 7th June to 13th June 2019. This workshop was carried out under the guidance of Dr.Runu Das (Principal) and Mr. Indrajit Bandyopadhyay (Co-ordinator, IQAC, Kalyani Mahavidyalaya). The course coordinator of this workshop was Dr.Subhrangsu Taran (In-charge, Department of Physics) and the course supervisors cum instructors were Dr.Subhrangsu Taran,Mr. Sayak Mukherjee, and Mr. Bhaskar Biswas. Around46 students enrolled in the Workshop from different departments of the college.

Program Objectives and Outcomes

Python is a widely used high-level programming language. Google makes extensive use of Python in its web search system and employs Python's creator. Intel, Cisco, Hewlett-Packard, Seagate, Qualcomm, and IBM use Python for hardware testing. The YouTube video-sharing service is largely written in Python. The design of Python emphasizes code readability, and programmers find its syntax easy to express concepts in fewer lines of code than would be possible in other languages like Java, C, or C++. This language provides constructs that are intended to enable clear programs on a small as well as on a large scale. Python supports multiple programming paradigms, including object-oriented, imperative, and functional programming or procedural styles. It features a dynamic type system and automatic memory management and has a large and comprehensive standard library. Python interpreters are available for installation on many operating systems, allowing Python code execution on a wide variety of systems.

This course aimed to provide a basic understanding of the Python programming language. The course was designed in such a way that the students could read and write codes of their own by the end of the course. The basics that were covered during the course included installation, variables and data types, lists, dictionaries, loops, functions, etc. Apart from that the course also included various computational methods to solve scientific and physical problems such as Newton Raphson method, Euler method, Simpson 1/3 rule, Runge-Kutta method, etc. All the coding was done in the IDLE platform which is an integrated development environment for Python. It includes editing, interactive testing, debugging, and introspection features. Conclusively it is desirable to use Python as the principal teaching language as it is free from both source code and cost perspective. It is also trivial to install on a Windows PC and is flexible as it allows both traditional procedural programming and modern object-oriented

programming. In the end quicker to learn and in combination with its many libraries, this offers the possibility of more rapid student development.

Program Layout

	DAY 1
Time	Theme
10.00-11.15 am	Registration and Inaugural Session/Opening Remarks
11.15-11.30 am	Break
11.30-12.45 am	Getting Started (Introduction & Installation)
12.45-1.30 pm	Refreshment
1.30-2.45 pm	Variables and Simple data types – I
2.45-3.00 pm	Break
3.00-4.15 pm	Variables and Simple data types – II

	DAY 2
Time	Theme
10.00-11.15 am	Computational Numerical Methods – I (Newton Raphson Method)
11.15-11.30 am	Break
11.30-12.45 am	Computational Numerical Methods – II (Newton Raphson Method)
12.45-1.30 pm	Refreshment
1.30-2.45 pm	Introducing Lists
2.45-3.00 pm	Break
3.00-4.15 pm	Working with Lists

	DAY 3
Time	Theme
10.00-11.15 am	Computational Numerical Methods – III (Trapezoidal and Simpson Rule)
11.15-11.30 am	Break
11.30-12.45 am	Computational Numerical Methods – IV (Euler and Runge Kutta Method)
12.45-1.30 pm	Refreshment
1.30-2.45 pm	IF Statements
2.45-3.00 pm	Break
3.00-4.15 pm	Dictionaries

DAY 4	
Time	Theme
10.00-11.15 am	Computational Numerical Methods – V (Euler and Runge Kutta Method)
11.15-11.30 am	Break
11.30-12.45 am	Computational Numerical Methods – VI (Solution of linear system of Equation)
12.45-1.30 pm	Refreshment
1.30-2.45 pm	User Input and While Loops
2.45-3.00 pm	Break

DAY 5	
Time	Theme
10.00-11.15 am	Computational Numerical Methods – VII (2nd Order ODE – Fixed Difference Method)
11.15-11.30 am	Break
11.30-12.45 am	Computational Numerical Methods – VIII (2nd Order ODE – Fixed Difference Method)
12.45-1.30 pm	Refreshment
1.30-2.45 pm	Functions
2.45-3.00 pm	Break
3.00-4.15 pm	Practical

DAY 6	
Time	Theme
10.00-11.15 am	PRACTICAL
11.15-11.30 am	Break
11.30-12.45 am	PRACTICAL
12.45-1.30 pm	Refreshment
1.30-2.45 pm	PRACTICAL
2.45-3.00 pm	Break
3.00-4.15 pm	PRACTICAL

List of participants

Sl no.	Name	Name of the Department	Registration no.
1	Shreyasi Biswas	Mathematics	015602
2	Vikash Prasad	Mathematics	015647
3	Ritam Sarkar	Mathematics	015630
4	Soumyadip Biswas	Mathematics	015641
5	Dhriti De	Mathematics	015591
6	Rimi Durlav	Mathematics	015596
7	Sagar Mistri	Mathematics	015632
8	Rubina Mondal	Mathematics	015599
9	Shreyasee Das	Mathematics	015601
10	Paramjeet Singh	Mathematics	015623
11	Sanju Ghosh	Mathematics	015635
12	Tardej Tudu	Mathematics	015607
13	Moumita Paul	Mathematics	015593
14	Sombari Murmu	Mathematics	015603
15	Ramkrishna Maiti	Mathematics	015628
16	Tanay Thakur	Mathematics	015645
17	Avijit Mandal	Mathematics	015610
18	Anushka Gope	Mathematics	015587
19	Rima Sarkar	Mathematics	015595
20	Debjani Ghosh	Mathematics	015590
21	Soumili Sen	Mathematics	015604
22	Riya Das	Mathematics	015598
23	Ankita Bhattacharya	Mathematics	015586

24	Debipriya Paul	Mathematics	015589
25	Avik Debnath	Mathematics	015611
26	Ayan Paul	Mathematics	015612
27	Subhajit Bardhan	Mathematics	015642
28	Ritwika Paul	Mathematics	015597
29	Dipan Das	Statistics	015685
30	Madhumita Mukherjee	Statistics	015673
31	Deep Kumar Mondal	Statistics	015683
32	Sayani Chakraborty	Statistics	015676
33	Nishita Roy	Statistics	015674
34	Debjit Roy	Statistics	015682
35	Sneha Rakshit	Statistics	015678
36	Hritik Kumar Mishra	Statistics	015686
37	Shreyaa Kar	Statistics	015677
38	Sagar Sarkar	Statistics	015688
39	Pankaj Pasi	Economics	013814
40	Arpita Paul	Economics	013813
41	Madhuri Das	Economics	015452
42	Sharmistha Chatterjee	Economics	015454
43	Somnath Das	Economics	015464
44	Mainak Das	Economics	015460
45	Shreya Mandal	Economics	015456
46	Anjali Sharma	Economics	015450

Some of the Glimpses of the Training Program

Kalyani Mahavidyalaya
Kalyani, Nadia

Organised by
Kalyani Mahavidyalaya,
Kalyani, Nadia

Certificate

of Participation

This is to certify that

Mr/Ms_____

of Department of _____ participated and successfully

completed the training program on **"Python Programming to Solve Scientific and Physical Problems"** held

from **07 June 2019 to 13 June 2019** and organized by the **department of Physics**, Kalyani Mahavidyalaya,

Kalyani, Nadia.

Dr. Runu Das
Principal.
Kalyani Mahavidyalaya

Shri Indrajit Bandyopadhyay
Coordinator IQAC
Kalvani Mahavidvalava

Dr. Subhrangsu Taran
In-Charge, Dept. of Physics
& Course Coordinator

Shri Bhaskar Biswas
Course Supervisor