SERAMPORE GIRLS' COLLEGE

AFFILIATED TO UNIVERSITY OF CALCUTTA

DEPARTMENTAL REPORT

Department *of Physics*

FACULTY OF SCIENCE · PHYSICAL SCIENCES

ACADEMIC YEAR

2024 – 2025

ADVANCING KNOWLEDGE · INSPIRING INQUIRY · EMPOWERING WOMEN

Teachers' Day Celebration

Date: 01/10/2024
Time: 11:00 a.m. – 3:30 p.m.
Venue: NB 21
Department(s): Computer Science, Mathematics, Physics, Electronic Science, Botany, Zoology, Chemistry

Objective: To celebrate Teacher's Day.

Number of Attendees:
Students: 26
Teachers: 8

Outcome: It enhanced the teacher-student relationship.

Notice: Teachers' Day Celebration

Date: October 1, 2024
Time: 11:00 a.m. – 3:30 p.m.
Venue: Department of Physics, Serampore Girls' College

The Department of Physics is honored to announce a special celebration in observance of Teachers' Day. This event is dedicated to acknowledging the invaluable contributions of our esteemed faculty members who tirelessly dedicate themselves to academic excellence and student mentorship.

All students, staff, and faculty are cordially invited to join us in expressing our profound gratitude and respect for the educators who shape our future. We look forward to your presence at this significant occasion.

Signature of head of Department

photos of the event

6. Departmental Activities:-

Career Counselling Program 2024-25

Date: 07/09/2024   **Time:** 12 noon   **Venue:** Room NB - 17

Objective: To encourage students to learn about the modern requirement in IT Sector. To make them know how to join in IT Sector.

Program Details: Department of Sciences (Computer science, Physics) has arranged a career counselling program to discuss about different Job Aspects in IT Sector. Sanchari Sen, Senior Software Engineer, Capgemini Service India Pvt. Ltd. Kolkata discussed about different topics on Jobs in IT. She is also ex-student of Department of Computer Science. 15 Students of 1st, 3rd and 5th Semesters participated on this session. The session was interactive and very effective. The topics described in the session were:
- Understanding the IT Industry
- Skills Required
- Educational Pathways
- Career Options
- Job Search Strategies
- Networking and Professional Development
- Interview Preparation for IT Industry etc.

Outcome: We, the team of Departments of Sciences, were really flabbergasted by the immense response of our students to take part in the event. The newer age with shiny intelligence actually struck their mark for sure. We are quite hopeful for such future endeavors if our honorable college authority allows us to arrange the fruiting of such plans.

PHOTO OF THE EVENT

ATTENDANCE SHEET

Dept of Physics, Serampore Girls College

Serampore Girls' College

13, T.C. Goswami Street, Serampore, Hooghly - 712201, West Bengal, India
Established in 1981
Re-accredited by NAAC (3rd Cycle): B++

Parent Teacher Meeting Report

Session: 2024–2025

Event Type: Parent Teacher Meeting
Event Date: 18/12/2024
Event Time: 12 noon
Subject Teacher: Dr. Sandip Majumdar
Attendance: 7
Objective: To show the students attendance (in %), CIE results and behavior of students to parents.

Brief Description: Students of Semester I were present in the meeting with their guardian.

Outcome: Discussion about their studies were made through one-to-one communication.

Signature of HOD

Serampore Girls' College

13, T.C. Goswami Street, Serampore, Hooghly - 712201, West Bengal, India
Established in 1981
Re-accredited by NAAC (3rd Cycle): B++

NOTICE

Date: 20th November 2024

This is to inform all Semester I students (Major and MDC) of the Department of Physics that a **Parent-Teacher Meeting** will be held as per the following schedule:

Date:	Wednesday, 18th December 2024
Time:	11:00 AM onwards
Venue:	Department of Physics, Serampore Girls' College

All students are requested to inform their parents/guardians and ensure their presence for a fruitful interaction regarding academic progress and attendance.

Your cooperation in making the meeting successful will be highly appreciated.

Sandip Majumder

Dept. of Physics
Serampore Girls' College

Images of the event

Serampore Girls' College

Departments Of Computer Science

Parent Teacher Meeting

2024-25

Date – 18/12/2024

Sl. No.	Students' Name	Roll No.	Signature and Contact Number of the Guardian
1	Leena Paul	24242	রুমা পাল (9748143595)
2	Varsha Shaw	24267	Nutan Shaw (9831277278)
3	Joymita Kar	24238	Jyoti Bhusan Kar (9748049270
4	Kainat Parween	24230	মোঃ নাসির (9123722813
5	Ankita Polem	24229	Bikash Polem (9830548076)
6	Swarnali Mitra	24265	স্বপন মিত্র 6291414432
7	Shital Sharma	24259	Apurna Parasar 7976336457)

Moumita Ghosal.
Head of the Department
Department of Computer Science

ATTENDANCE OF PARENT TEACHER MEETING

Serampore Girls' College

13, T.C. Goswami Street, Serampore, Hooghly - 712201, West Bengal, India
Established in 1981 — Re-accredited by NAAC (3rd Cycle): B++

Educational Tour Report

Session: 2024-2025 — Event Type: Educational Tour — Date: 2024-12-20

TOUR DETAILS

Departments:
Computer Science, Mathematics, Physics, Electronic Science

Participants:
15 students from Semester-I & III

Venue: Science City, Kolkata

Schedule:
- Departure: 9:00 AM from Serampore
- Activities: Science exhibits, educational shows
- Meals: Lunch & snacks provided
- Return: 7:00 PM to Serampore

OBJECTIVES

- Enhance understanding of scientific phenomena
- Promote teamwork and social skills
- Encourage independent learning
- Foster creativity and critical thinking
- Provide break from classroom routine

PROGRAM DESCRIPTION

The interdisciplinary tour organized by science departments provided hands-on learning experiences through interactive exhibits on electricity, magnetism, and optics. Students engaged with practical demonstrations, attended educational shows, and participated in group discussions. The visit served as an effective bridge between theoretical knowledge and real-world applications.

LEARNING OUTCOMES

- Improved understanding of scientific principles through immersive exhibits
- Enhanced team-building skills through collaborative activities
- Development of analytical thinking via interactive demonstrations
- Increased environmental and scientific awareness
- Refreshment of academic motivation through experiential learning

Dept. of Physics, Serampore Girls' College

IMAGES OF THE EVENT

Ref. No. ....   Date 9. 12. 24

Department of Physics

NOTICE

Dept. of Computer science, Mathematics, Physics and Electronic Science have arranged an Educational Tour for B.Sc. (Major / Minor) semester I and III students on 20th December (Friday) to Science City, Kolkata. Interested students have to submit Rs. 450 to Mrs. Nabamita Nath till 17th December, 2024. Students are requested to carry Identity Card, small tiffin and sufficient Water. Lunch will be provided. Further information can be gathered from the department.

Principal

Principal
Serampore Girls' College
Serampore, Hooghly

Department of Physics
Serampore Girls' College

NOTICE OF THE STUDY TOUR

Report on Open House Program
Department of Science
Serampore Girls' College

Date: 21st May 2025
Time: 12:30 PM

1. Objective

The primary objective of the Open House program was to establish an open and supportive dialogue between the students and the faculty members of the Department of Science. The main goals included:

- Addressing academic issues and learning challenges faced by students.

- Discussing concerns related to teaching methods, laboratory sessions, and examinations.

- Identifying and resolving infrastructure-related concerns within the department and the college.

2. Description

The Open House was held on 21st May 2025 at 12:30 PM within the Science Block of Serampore Girls' College. Faculty members from the departments of Physics, Chemistry, Mathematics, and Electronic Science actively participated in the event.

During the session, students raised various academic issues, such as:

- Difficulty in understanding complex topics in certain subjects.

- Requests for extra tutorial and remedial classes.

- Suggestions for modernizing laboratory equipment and increasing practical exposure.

In addition to academic concerns, students also shared feedback regarding:

- Inadequate availability of textbooks and reference materials in the library.

- Poor ventilation in some classrooms.

- Limited internet access and digital resources.

Faculty members attentively listened to each point and assured appropriate action. Immediate solutions were discussed where feasible, while others were documented for discussion with the college administration.

3. Outcome

The program achieved its intended goals and yielded positive results:

- Students appreciated the opportunity to voice their concerns in an open and respectful environment.

- Teachers gained deeper insight into the challenges faced by students, which will help improve teaching and support strategies.

- Plans were initiated for follow-up actions, including addressing infrastructure issues and scheduling additional academic support sessions.

- The session strengthened mutual trust and communication between students and faculty.

Prepared by:
Department of Physics
Serampore Girls' College

Serampore Girls' College

(Estd. : 1981)

Accredited by NAAC

13, T. C. GOSWAMI STREET, SERAMPORE, HOOGHLY. PIN -712 201, WEST BENGAL.

Ph: (033) 2652 9334 • (033) 26527850 (Principal) • 26623723 (Office) • 2652-0008

E-mail : science@seramporegirlscollege.org • sgc.scdept@gmail.com

Ref. No. ....

Date... 17·05·25

NOTICE

Dept. of Computer Science, Electronic Science, Physics, Mathematics have arranged an Open House Discussion for B.Sc. (Major & Minor) students on 21st May,2025 from 12 noon onwards. Participation of each student are mandatory.

Principal
Serampore Girls College
Serampore, Hooghly

Principal
Serampore Girls' College

17/05/25

Serampore Girls' College

Computer Science, Electronic Science, Physics, Mathematics

Open House Program

2024-25

Date – 21.05.2025

Sl. No.	Students' Name	Roll No.	Mobile No.
1	Scrarnali Mitra	24265	6291414432
2	Joymita Jkar	24238	9477817021
3	Ankita Santra	24230	8240519017
4	Aditi Chakraborty	24228	8293751918
5	Vaisha Shaw	24267	9903791167
6	Manisha Nalla	24244	6290137197
7	Suhani Kumari	24877	6290062302

Smlcij
21. 5. 25
Head of the Department
Department of Physics

haymalishi my
21/05/25
Head of the Department
Department of Mathematics

M. Ghosal
21. 5. 25
Head of the Department
Department of Computer Science

Indrani Guha
21. 5. 25
Head of the Department
Department of Electroni

Teachers' Signature

Project Summary

Project Title: *Introduction to Graph Plotting (2D only, using GNUPLOT) and Introduction to Programming in Python*

Objective

- To introduce 2D graph plotting using GNUPLOT.

- To provide basic knowledge of Python programming.

- To apply computational tools in solving physics problems.

Outcome

- Students learned to plot 2D graphs using GNUPLOT.

- Gained basic Python programming skills.

- Understood the role of coding and plotting in physics applications.

Project Coordinator: Dr. Sandip Majumdar (HOD, Dept. of Physics)

SERAMPORE GIRLS' COLLEGE

Department of Physics

Project Report on:

"SEC-1: Introduction to Computer Programming and Graph Plotting"

Semester: II

Subject: MPHS

Submitted by: Payel Kumari Jha

Roll No.: 243614-12-0023

Registration No.: 614-1211-0601-24

Project Guide:

Dr. Sandip Majumdar

Department of Physics, Serampore Girls' College

Submitted to: Department of Physics, Serampore Girls' College,

Serampore, Hooghly – 712201

Academic Year: 2024 – 2025

Received

Sandip Majumdar

Head of the Department
Department of Physics

Undertaking

I, _Payel Kumari Jha_ , student of Serampore Girls' Col- lege, in partial fulfillment of the requirements for the project titled **"SEC-1: Introduction to Computer Programming and Graph Plotting"**, do hereby declare that this project has been completed under the supervision of Dr. Sandip Majumdar, and the work presented in this report is an original piece of work undertaken by me.

I further declare that the work presented in this project report has not been submitted elsewhere for any other academic degree or diploma.

Date: _25/07/25_

Signature: _Payel Kumari Jha_

SERAMPORE GIRLS' COLLEGE

Paper: SEC-2   Subject: MPHS

Date: 25.07.2025   Time: 11:00 AM – 8:00 PM

INTRODUCTION TO COMPUTER PROGRAMMING AND GRAPH PLOTTING

Full Marks: 100

(Each student will answer one question from Part 1 and one from Part 2)

Part 1: Introduction to Graph Plotting (2D only, using GNUPLOT)

Q1. Plot the function $y = \sin(x)$ in the range $x = 0$ to $x = 2\pi$ using lines. Make sure to label the axes and add a title.

Q2. Given a data file `data.txt` with two columns (x, y), plot the data as points. Label the axes and add a suitable title.
Sample data:
```
1   2
2   3
3   5
4   4
5   7
```

Q3. Plot $y = x^2$ for x from -5 to 5 using `linespoints` style, with a specific linetype and increased linewidth. Set the y-axis range from 0 to 30 and customize the plot appearance.

Part 2: Introduction to Programming in Python

Q4. Create a list of integers from 1 to 10. Use a loop to print only the even numbers from the list. Then, append the number 12 to the list and display the updated list.

Q5. Write a Python program that takes an integer input from the user and:

- Checks whether it is positive, negative, or zero using `if-elif-else`.

- Prints all even numbers from 0 to that number using a `for` loop.

- Uses a `while` loop to calculate the sum of all odd numbers from 1 to that number.

Q6. Write a Python program to perform the following operations on a list:

- Create a list of numbers

- Find the length, sum, minimum, and maximum values using built-in functions
- Add a number to the end of the list
- Sort the list in ascending order
- Print the final list

UNIVERSITY OF CALCUTTA

Attendance Sheet (Practical) for Home Centre Examination

Three Year B.Sc. SEMESTER - II Examination, 2025 (Under CCF, 2022)

Centre : SERAMPORE GIRLS COLLEGE (614)

Subject : PHYSICS (MPHS)

Course : SEC-2

Course Name : INTRODUCTION TO GRAPH PLOTTING & PROGRAMMING

Full Marks: 100

Srl No.	Roll Numbers	Registration Numbers	Name of the Candidates	Signature of Candidates
1	243614-12-0023	614-1211-0601-24	PAYEL KUMARI JHA	Payel Kumari Jha
2	243614-12-0024	614-1211-0609-24	GULNAR PARVEEN	Gulnar Parveen.
3	243614-12-0025	614-1214-0602-24	RAJANI BHAGAT	Rajani Bhagat

Full Signature with date and office seal :

H.O.D

Load   Data Plotting   ⌄   Download Files

Script:
```
1  set title 'Data Plot'
2  set xlabel 'time [min]'
3  set ylabel 'distance [mile]'
4  plot 'data.txt' title 'trial 1', 'data.txt' using 1:3 title 'trial 2'
5
```

Image:
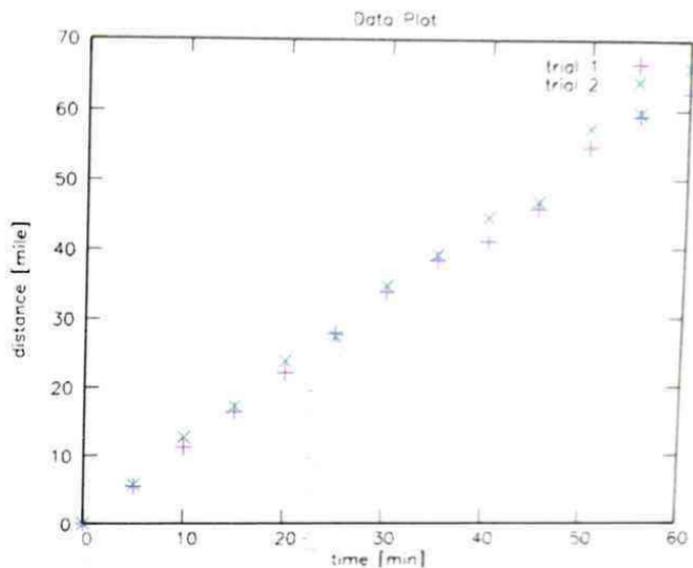
Data:
```
1  0  0.0  0.0
```

Output:
```
1
```

Roll.no - 243614-12-0023   Registration no - 614-1211-0601-24

Line width and line style

```
1    # Set plot ranges
2    set xrange [-10:10]
3    set yrange [0:100]
4
5    # Set axis labels and title
6    set xlabel "x"
7    set ylabel "y"
8    set title "Plot of y = x^2 with lines and points"
9
10   # Plot with lines and points (style: w lp), linetype 3, linewidth 3
11   plot x**2 with linespoints lt 2 lw 3 title "y = x^2"|
```

Image:

Plot of $y = x^2$ with lines and points
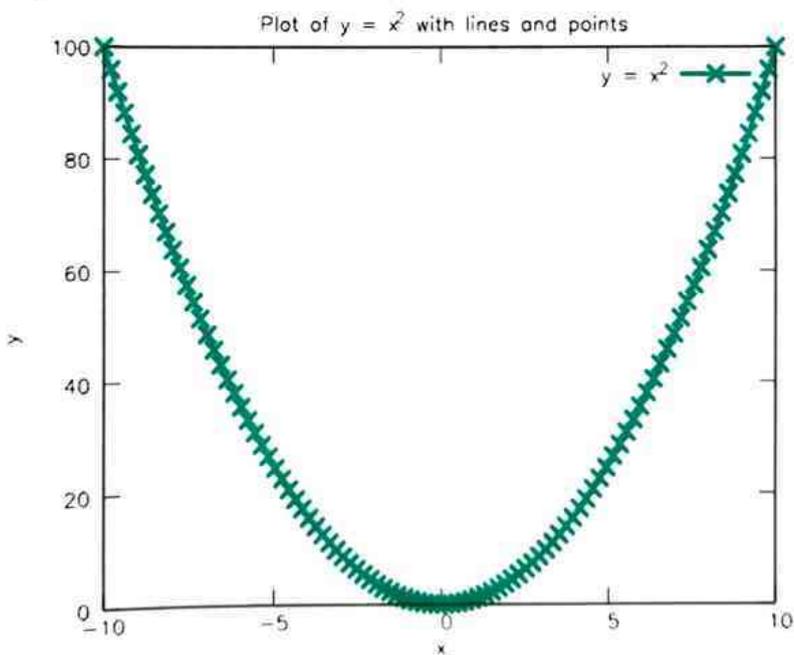
Script:
```
1   # Set plot ranges
2   set xrange [-10:10]
3   set yrange [0:100]
4
5   # Set axis labels and title
6   set xlabel "x"
7   set ylabel "y"
8   set title "Plot of y = x^2 with lines and points"
9
10  # Plot with lines and points (style: w lp), linetype 3, linewidth 3
11  plot x**2 with dots lt 2 lw 3 title "y = x^2"
```

Image:

Company Name: Ardent Computech Pvt. Ltd.

Internship Topic: DATA SCIENCE AND DATA VISUALIZATION USING PYTHON

Start Date: May 16, 2025

End Date: Jun 11, 2025

Attendees: 11(7 Major+ 4 MDC) students of Semester IV from SERAMPORE GIRLS COLLEGE
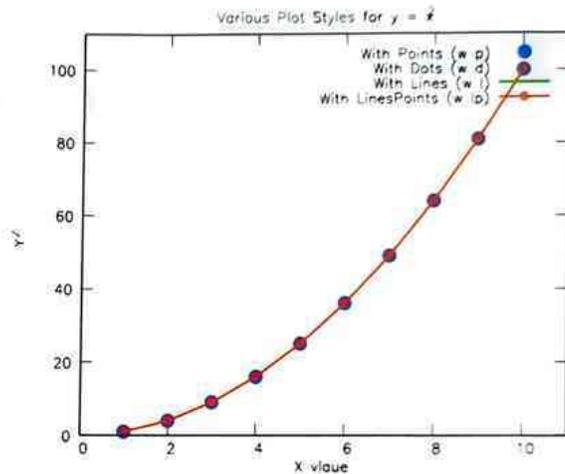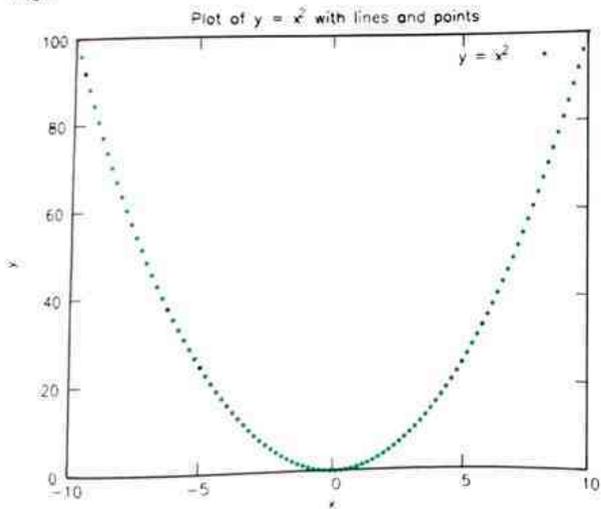
Internship Goals and Objectives Internship Goals:

1. Understand the fundamentals of data analysis and data visualization
2. Learn the workflow of handling, cleaning, analyzing, and visualizing data using Python
3. Gain hands-on experience with key Python libraries for data science
4. Apply skills to solve real-world data problems through a project-based approach

Internship Objectives:

1. Learn core Python programming concepts relevant to data analysis
2. Explore NumPy for numerical operations and Pandas for data manipulation
3. Visualize data using Matplotlib, Seaborn, and Plotly
4. Perform exploratory data analysis (EDA) to extract insights
5. Complete an end-to-end data analysis and visualization project using real datasets

Modules and Learning Outcomes:

Module	Learning Outcomes
Python Basics	Variables, control structures, functions, and data types
NumPy	Numerical operations and handling multi-dimensional arrays
Pandas	Data manipulation, cleaning, and transformation
Matplotlib	Creating basic charts and plots for data visualization
Seaborn	Advanced visualizations like heatmaps, pairplots, and trend graphs

Mahendra Datta
Technical Head
Ardent Computech Pvt. Ltd.

Dr. Soma Roy
Principal
Serampore Girls College

भारतीय गैर न्यायिक

बीस रुपये

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Rs.20

TWENTY RUPEES

INDIA NON JUDICIAL

पश्चिमबङ्ग पश्चिम बंगाल WEST BENGAL 29AA 554956

MEMORANDUM OF UNDERSTANDING (MoU)

BETWEEN

Serampore Girl's College
13,T.C.KL Goswami Street, Serampore, West Bengal 712201

AND

Ardent Computech Pvt Ltd,

Module No.132, Ground Floor, SDF Building, Sector V, Salt Lake,
Kolkata-700091, West Bengal

Principal
Serampore Girls' College
Serampore, Hooghly

Indranil De Sarkar

ARDENT COMPUTECH PVT. LTD.
KOLKATA

2.1 Internship for students: Internship and Institution interaction will provide an insight into the latest developments / requirements of the industries; the Second Party will arrange internships for the Students of the First Party in association with other companies.

This Memorandum of Understanding (hereinafter called as the 'MoU') is entered into on this the 3rd day of March 2025 by and between.

Serampore Girl's College, **13,T.C.KL Goswami Street, Serampore, West Bengal 712201**, the First Party represented herein by **Principal** (hereinafter referred as **'First Party'**, the institution which expression, unless excluded by or repugnant to the subject or context shall include its successors – in-office, administrators and assigns).

And

Ardent Computech Private Limited, Module No -132, SDF Building, Sector -V , Kolkata -700091 the second party, and represented herein by its Director Mr. Indranil De Sarkar. (hereinafter referred as **'Second Party'**, the institution which expression, unless excluded by or repugnant to the subject or context shall include its successors – in-office, administrators and assigns).

WHEREAS:

A) First Party is a Higher Educational Institution named: **Serampore Girl's College**

B) First Party & Second Party believe that collaboration and co-operation between themselves will promote more effective use of each of their resources, and provide each of them with enhanced opportunities.

C) The Parties intent to cooperate and focus their efforts on cooperation within area of Internship , Skill Based Training, Education, Placement, Industrial Visit, Expert Lecture.

D) **Ardent Computech Private Limited** the Second Party is engaged in Technology Training & Development & Internship.

NOW THEREFORE, IN CONSIDERATION OF THE MUTUAL PROMISES SET FORTH IN THIS MOU, THE PARTIES HERETO AGREE AS FOLLOWS:

CLAUSE 1: CO-OPERATION

1.1 Both Parties are united by common interests and objectives, and they shall establish co-operation.

1.2 First Party and Second Party co-operation will facilitate effective utilization of the intellectual capabilities.

1.3 The parties shall co-operate with each other and shall as promptly as is responsibly practical, relevant agreement.

CLAUSE 2: SCOPE OF THE MoU

2.1 Internship for students: Internship and Institution interaction will provide an insight into the latest developments / requirements of the industries; the Second Party will arrange internships for the Students of the First Party in association with other companies.
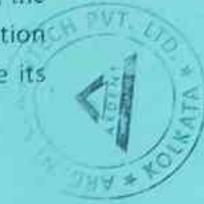
CLAUSE 4: RELATIONSHIP BETWEEN THE PARTIES

4.1 It is expressly agreed that First Party and Second Party are acting under this MOU as independent contractors, and the relationship established under this MOU shall not be construed as a partnership.

AGREED:

For **Serampore Girls' College**

Sama Roy.

(Authorized Signatory)
Principal
Serampore Girls' College
Serampore, Hooghly

For **Ardent Computech Pvt Ltd**

Indranil De Sarkar

(Authorized Signatory)

Name of College: Serampore Girl's College	Name of Company : Ardent Computech Pvt. Ltd.
13,T.C, Goswami Street, Serampore, West Bengal 712201	Module No-132, Ground Floor, SDF Building, Sector-V, Salt Lake, Kolkata-700091
Email: serampore_girls_college@yahoo.co.in	Email : www.ardentcollaborations.com
Website : https://seramporegirlscollege.org/mainsite/	Website : https://ardentcollaborations.com

Witness1: *Aritra Ghosh*

Witness2: *Moumami Dey*

Witness3: *Abhisek Saha*

Witness4: *Rajmohan De Sarkar*

ATTENDANCE

SL. NO	STUDENT NAME	STUDENT NAME	DEPARTMENT	SEMESTER	CU REGISTRATION NUMBER	CU ROLL NUMBER	5/16	5/19	5/20	5/21	5/22	5/23	5/27	5/28	5/29	6/2	6/4	6/5	6/8	6/12	6/14	Present P	Absent A	Total	Attendance (%)
1	Anjali Ojha	Anjali Ojha	Computer Science		614-1211-0760-23	233614-12-0021	P	P	P	P	A	P	A	P	P	P	P	P	P	P	P	12	2	14	86
2	Nisha Dasmondal	Nisha Dasmondal	Computer Science		614-1211-0758-23	233614-12-0018	P	P	A	P	P	P	A	P	P	P	P	P	P	P	A	12	2	14	86
3	SUNETRA KAR	SUNETRA KAR	Computer Science		614-1211-0759-23	233614-12-0019	P	A	P	P	P	P	A	P	P	P	A	P	P	P	P	11	3	14	79
4	Nirjala Ram	Nirjala Ram	Computer Science		614-1211-0272-23	233614-11-0002	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	13	1	14	93
5	Pubali Majumdar	Pubali Majumdar	Computer Science		614-1211-0287-23	233614-11-0005	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	12	2	14	86
6	Chandani Saroj	Chandani Saroj	Computer Science		614-1211-0777-23	233614-12-0023	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	13	1	14	93
7	Dipti Dey	Dipti Dey	Computer Science		614-1211-0278-23	233614-11-0004	P	A	P	P	P	P	P	P	P	P	P	P	P	A	A	12	2	14	86
8	Sayani Das	Sayani Das	Computer Science		614-1211-0263-23	233614-11-0001	P	P	P	P	P	P	A	P	P	P	A	P	P	A	P	11	3	14	79
9	ISITA SANTRA	ISITA SANTRA	Computer Science		614-1211-0300-23	233614-11-0006	P	P	P	P	P	A	P	P	P	A	P	P	A	P	P	11	3	14	79
10	Kusumita Ghosh	Kusumita Ghosh	Computer Science		614-1241-0265-23	233614-11-0008	P	P	P	P	P	P	P	P	P	P	P	A	P	A	A	12	2	14	86
11	Nilufa Mallick	Nilufa Mallick	Computer Science		614-1211-0774-23	233614-12-0020	P	A	P	P	P	P	P	P	P	P	P	A	A	P	P	11	3	14	79
12																									
13																									

Soma Roy
Principal
Serampore Girls' College
Serampore, Hooghly

FINAL SCORE SHEET

ARDENT®

"Drives You to Industry"

Internship Evaluation Evaluation Of Serampore Girl's College Department of Computer Science | SEM - 4

NAME	STREAM	CU_REGISTRATION NUMBER	COLLEGE_ROLL_NO	SEMESTER	INTERNSHIP_DOMAIN	PROJECT NOTE BOOK (50)	VIVA (25)	TOTAL (75)
PUBALI MAJUMDAR	Computer science	614-1211-0287-23	233614-11-0005	4	Data Science & Data Visualization using Python	48	22	70
KUSUMITA GHOSH	Computer science	614-1241-0265-23	233614-11-0008	4	Data Science & Data Visualization using Python	49	22	71
CHANDANI SAROJ	Computer science	614-1211-0777-23	23481	4	Data Science & Data Visualization using Python	47	24	71
NIRJALA RAM	Computer science	614-1211-0272-23	233614-11-0002	4	Data Science & Data Visualization using Python	47	23	70
ISITA SANTRA	Computer science	614-1211-0300-23	233614-11-0006	4	Data Science & Data Visualization using Python	47	22	69
DIPTI DEY	Computer science	614-1211-0278-23	23055	4	Data Science & Data Visualization using Python	48	23	71
ANJALI OJHA	Computer science	614-1211-0760-23	23425	4	Data Science & Data Visualization using Python	46	22	68
SAYANI DAS	Computer science	614-1211-0263-23	23067	4	Data Science & Data Visualization using Python	48	23	71
NILUFA MALLICK	Computer science	614-1211-0774-23	23626	4	Data Science & Data Visualization using Python	47	23	70
NISHA DASMONDAL	Computer science	614-1211-0758-23	23628	4	Data Science & Data Visualization using Python	46	23	69
SUNETRA KAR	Computer science	614-1211-0759-23	233614-12-0019	4	Data Science & Data Visualization using Python	47	23	70

Principal
Serampore Girls' College
Serampore, Hooghly

ARDENT
COMPUTECH PVT LTD
High-End Technology Training and Project

"Knowledge is power, power leads to growth, growth is life"

Internship Evaluation Evaluation Of Serampore Girl's College Department of Computer Science   SEM - 4

SL	NAME	STREAM	CU_REGISTRATION NUMBER	COLLEGE_ROLL_NO	SEMESTER	INTERNSHIP_DOMAIN	PROJECT NOTE BOOK (50)	VIVA (25)	TOTAL (75)
1	PURALI MAJUMDAR	Computer science	514-1211-0287-23	233614-11-0005	4	Data Science & Data Visualization using Python	48	22	70
2	KUSUMITA GHOSH	Computer science	514-1241-0265-23	233614-11-0008	4	Data Science & Data Visualization using Python	49	22	71
3	CHANDANI SAROJ	Computer science	514-1211-0777-23	23451	4	Data Science & Data Visualization using Python	47	24	71
4	NIRJALA RAM	Computer science	514-1211-0272-23	233614-11-0002	4	Data Science & Data Visualization using Python	47	22	70
5	ISITA SANTRA	Computer science	514-1211-0300-23	233614-11-0008	4	Data Science & Data Visualization using Python	47	22	69
6	DIPU DEY	Computer science	514-1211-0276-23	23056	4	Data Science & Data Visualization using Python	48	23	71
7	ANJALI OJHA	Computer science	514-1211-0260-23	23425	4	Data Science & Data Visualization using Python	46	22	68
8	SAYANI DAS	Computer science	514-1211-0263-23	23057	4	Data Science & Data Visualization using Python	49	23	72
9	NILUFA MALLICK	Computer science	514-1211-0774-23	23626	4	Data Science & Data Visualization using Python	47	23	70
10	NISHA DASMONDAL	Computer science	514-1211-0756-23	23628	4	Data Science & Data Visualization using Python	46	23	69
11	SUNETRA KAR	Computer science	514-1211-0769-23	233614-12-0019	4	Data Science & Data Visualization using Python	47	23	70

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An ISO 9001 : 2015 Certified Company

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https://ardentcollaborations.com
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SAMPLE CERTIFICATES

Reference No: ARDENT/149255

Issue Date: June 11, 2025

To,

**KUSUMITA GHOSH (CU REGN. NO: 614-1241-0265-23, CU ROLL NO: 233614-11-0008),
SERAMPORE GIRLS' COLLEGE**

Subject: Hands-on Industrial Training and Internship Completion Certificate

Dear **Intern,**

We are pleased to present you with this **CERTIFICATE** in recognition of your successful completion of the **HANDS-ON INDUSTRIAL TRAINING and INTERNSHIP** on

PYTHON AND ITS APPLICATIONS

at **Ardent Computech Pvt. Ltd.** from **May 16, 2025 to June 11, 2025 (60 HOURS).**
You have demonstrated dedication, professionalism, and a strong willingness to learn throughout your internship.

Your performance throughout the internship was commendable, and you exhibited excellent communication, problem-solving and teamwork skills. Your contributions were valuable to our organization, and we sincerely appreciate your hard work and dedication. We extend our best wishes to you for a successful career and hope that the knowledge and experience you gained during this internship will benefit your future endeavors.

Best Wishes,

Indranil De Sarkar
Director - HR

ARDENT COMPUTECH PVT. LTD. (www.ardentcollaborations.com, www.ardentsoftware.in), CIN: U72300WB2010PTC142869, MSME REGN NO: UDYAM-WB-14-0009263

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Reference No: ARDENT/149254

Issue Date: June 11, 2025

To,

ISITA SANTRA (CU REGN. NO: 614-1211-0300-23, CU ROLL NO: 233614-11-0006),
SERAMPORE GIRLS' COLLEGE

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Indranil De Sarkar
Director - HR

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Certificate Distribution Photos

CLASSROOM OF ARDENT COMPUTECH

Kolkata, West Bengal, India
Sdf Building, Gp Block, Sector V, Bidhannagar, Kolkata, West Bengal 700091, India
Lat 22.568794° Long 88.431557°
28/05/2025 11:28 AM GMT +05:30

Kolkata, West Bengal, India
Sdf Building, Gp Block, Sector V, Bidhannagar, Kolkata, West Bengal 700091, India
Lat 22.568788° Long 88.431563°
28/05/2025 11:27 AM GMT +05:30
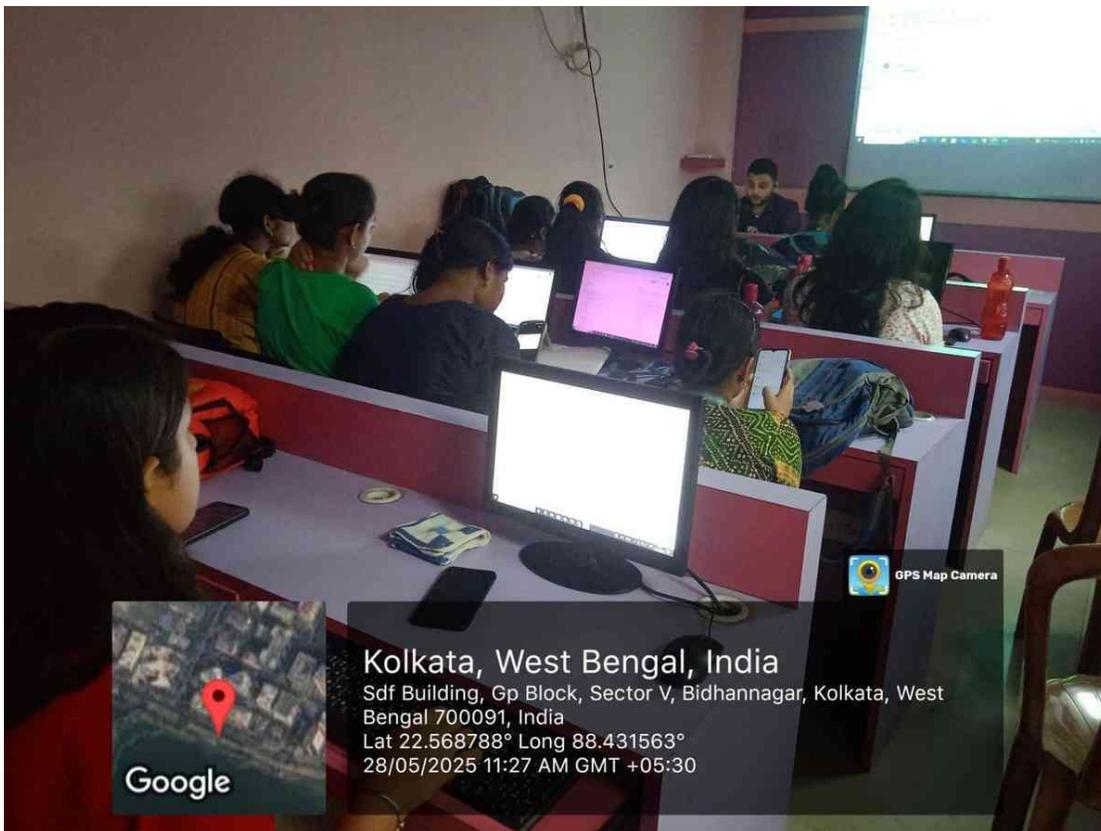
COURSE MODULE

Table of Contents

1. Company Profile: Ardent Computech Pvt. Ltd.

Ardent Computech Pvt. Ltd. is a premier Indian organization specializing in IT services, professional training, and skill development programs. It has a proven track record of excellence in delivering **industry-aligned, high-impact education**. Recognized for its strong industry partnerships and innovative teaching methodologies, Ardent serves as a bridge between academic theory and professional practice.

Over the years, Ardent has expanded its training portfolio to cover a wide range of **in-demand technologies and tools**, including:

- Artificial Intelligence (AI) and Machine Learning
- Data Science and Cloud Computing
- Full Stack Web Development
- Cybersecurity
- Digital Marketing
- AI-Powered Office Automation and Content Creation
- Microsoft Excel and Advanced Excel
- Power BI and Business Intelligence Tools

Expertise in Degree College Internships

Ardent is a **trusted partner for numerous degree colleges and universities across India**, delivering **structured internship programs** that combine theory with practical exposure. These internships are designed to meet undergraduate and postgraduate students' academic needs while equipping them with **job-ready digital and analytical skills**.

Ardent has successfully conducted internship programs in collaboration with esteemed institutions in technical and non-technical streams. Their internships are distinguished by:

Here is your list formatted clearly:

- Hands-on modules with real-time tools and applications
- AI-enabled project development and workflow automation
- Exposure to business communication, content strategy, and data-driven decision-making
- Industry-based certification upon completion

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Innovation in AI and Automation

Ardent has pioneered **AI-powered training modules** such as:

- **Office Automation using AI** (Google Workspace, ChatGPT, Notion AI)
- **AI for Digital Content Creation** (Canva AI, Grammarly, Pictory)
- **Marketing Automation** using SEO, Social Media Planning, and Lead Nurturing Tools
- **Web technology**
- **App development**
- **Data Engineering**
- **Cyber Security**
- **Cloud Technology**

These innovative programs help learners across disciplines—commerce, humanities, and science—adapt to modern workplace expectations.

Vision and Commitment

Ardent's mission is to **empower the youth of India** with practical, affordable, and future-ready skills. Through its **blended learning approach**, real-world projects, and mentorship, Ardent is committed to shaping professionals who are **technically proficient, ethically responsible, and globally competitive**.

2. Introduction to the Internship

This 15-day internship offered a practical and hands-on introduction to **Python-Based Data Analysis and Data Visualization**. Learners explored essential tools and libraries such as **Python, NumPy, Pandas, Matplotlib, Seaborn, and Plotly**, progressively building skills to clean, analyze, and visualize real-world datasets. The program emphasized developing data-driven insights and presenting them through interactive and meaningful visualizations using Python.

3. Internship Goals and Objectives

Internship Goals:

1. Understand the fundamentals of data analysis and data visualization
2. Learn the workflow of handling, cleaning, analyzing, and visualizing data using Python

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3. Gain hands-on experience with key Python libraries for data science

4. Apply skills to solve real-world data problems through a project-based approach

Internship Objectives:

1. Learn core Python programming concepts relevant to data analysis

2. Explore NumPy for numerical operations and Pandas for data manipulation

3. Visualize data using Matplotlib, Seaborn, and Plotly

4. Perform exploratory data analysis (EDA) to extract insights

5. Complete an end-to-end data analysis and visualization project using real datasets

4. Internship Schedule, Daily Assignments & Tools Used

Day	Module	Tools Used	Daily Assignment
1	Introduction to Python & Jupyter	Jupyter Notebook, Anaconda	Write: "What is Data Analysis and Data Visualization?"
2	Python Basics for Data Science	Jupyter Notebook	Write a Python script to take user input and display statistics
3	Data Structures in Python	Jupyter Notebook	Use lists and dictionaries to organize student data
4	NumPy Essentials	NumPy, Jupyter	Perform array operations and generate basic statistics
5	Pandas Basics	Pandas, Jupyter	Load CSV and perform data cleaning
6	Data Aggregation with Pandas	Pandas, Jupyter	Group data and calculate averages
7	Data Visualization Basics	Matplotlib	Plot line chart and bar chart with sample data
8	Advanced Visualization	Seaborn, Matplotlib	Create heatmaps and pairplots
9	Exploratory Data Analysis (EDA)	Pandas, Seaborn	Perform EDA on given dataset

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Day	Module	Tools Used	Daily Assignment
1	Introduction to Python & Jupyter	Jupyter Notebook, Anaconda	Write: "What is Data Analysis and Data Visualization?"
10	Introduction to Plotly & Interactive Charts	Plotly, Jupyter	Create an interactive pie chart and scatter plot
11	Introduction to Data Cleaning & Handling Missing Data	Pandas, NumPy	Handle missing values using different strategies
12	Data Correlation and Trend Analysis	Pandas, Seaborn	Analyze trends using correlation matrices
13	Project Data Collection & Cleaning	Python, Pandas	Load a dataset and prepare it for analysis
14	Project Analysis & Visualization	Pandas, Seaborn, Matplotlib	Analyze the dataset and visualize key findings
15	Final Presentation	PowerPoint, Jupyter, Screenshots	Present your data analysis project with visuals and code samples

5. Modules and Learning Outcomes

Module	Learning Outcomes
Python Basics	Variables, control structures, functions, and data types
NumPy	Numerical operations and handling multi-dimensional arrays
Pandas	Data manipulation, cleaning, and transformation
Matplotlib	Creating basic charts and plots for data visualization
Seaborn	Advanced visualizations like heatmaps, pairplots, and trend graphs
Plotly	Interactive and web-based data visualizations
Exploratory Data Analysis (EDA)	Identifying trends, patterns, and insights from datasets

6. Project Development Phase

Developed a complete data analysis and visualization project (e.g., Sales Report, COVID-19 Trend Analysis, Student Performance Insights), including:

- **Data Collection and Import** (from CSV/Excel/public datasets)
- **Data Cleaning and Preprocessing** (handling nulls, type conversions, filtering)
- **Exploratory Data Analysis (EDA)** (summary statistics, trend identification)
- **Visualizations** using Matplotlib, Seaborn, and Plotly
- **Dashboard Creation** to present insights in a visually compelling format
- **Interpretation of Results** with actionable insights and conclusions
- **Project prepared and executed using Jupyter Notebook**

7. Challenges and Solutions

Challenge	Solution
Jupyter Notebook not loading	Restarted Anaconda Navigator and refreshed the browser
Import errors for libraries	Installed missing packages using pip or conda
Data not displaying properly	Checked for missing values and adjusted data types
Graph not rendering	Verified plot commands and displayed using `plt.show()`
File path errors when loading the dataset	Used absolute paths and verified file locations

8. Learnings and Key Takeaways

- Developed a solid understanding of the data analysis workflow
- Gained hands-on experience with Python libraries like Pandas, NumPy, and Matplotlib
- Learned to clean, transform, and visualize real-world datasets
- Performed exploratory data analysis and created insightful dashboards
- Built confidence in presenting data-driven insights using visual storytelling

9. Appendix: Tools Used

Tool	Purpose
Jupyter Notebook	Interactive coding environment for data analysis
Anaconda	Python distribution with essential data science libraries
Pandas	Python library for data manipulation and analysis
NumPy	Library for numerical computing and array operations
Matplotlib	Plotting library for basic visualizations
Seaborn	Advanced statistical data visualization library
Plotly	Interactive and web-based data visualization tool
Google Colab (Optional)	Cloud-based Jupyter environment for online collaboration

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