



Serampore Girls' College

13, T.C. Goswami Street, Serampore, Hooghly - 712201, West Bengal
Affiliated to University of Calcutta | NAAC Re-accredited B++ (3rd Cycle) | Estd. 1981

DEPARTMENTAL REPORT

DEPARTMENT OF PHYSICS

Academic Year 2025-2026

Submitted by

Dr. Sandip Majumdar

Assistant Professor, Department of Physics

Serampore Girls' College

ACADEMIC YEAR 2025-2026 | RESEARCH & ANALYSIS



DEPARTMENT OF PHYSICS

Departmental Profile & Student-Teacher Ratio | Academic Session: 2025-2026

Prepared by Dr. Sandip Majumdar, Assistant Professor

**B++
3rd
Cycle**

1. DEPARTMENT AT A GLANCE

Department	Physics
Programmes	B.Sc Major (CCF NEP 2022), MDC, SEC, AEC
Year	General Course
Sanctioned Posts	01
Filled	01
HOD/Faculty	Dr. Sandip Majumdar

2. FACULTY PROFILE

Dr. Sandip Majumdar

Assistant Professor

M.Sc., Ph.D.

Spl: Electronics / Condensed Matter

8617677448

sandip@seramporegirlscollege.org

Achievement: Head Examiner (CU) - SEC-A2 (2025) & DSE-B1(PR) (2026) - Zone 1 (6 Colleges)

3. STUDENT-TEACHER RATIO

Category	Students	Teachers	Ratio
Major	16	01	16:1
MDC	12	01	12:1
Overall	28	01	28:1

Formula: STR = Total Students / Teachers. Ratio satisfactory as per UGC.

4. STUDENT STRENGTH 2025-26

SEM	MAJOR	MDC	TOTAL	REMARK
1	7	0	7	CC1 Batch
2	7	0	7	CC1 Batch
3	-	3	3	MDC Only
4	-	3	3	MDC Only
5	2	3	5	Major 2
6	-	3	3	MDC Only
TOTAL	16	12	28	

5. VISUAL SUMMARY

Total Students: 28	Major 16 (57%) MDC 12 (43%)
Faculty: 01 Full-time	Dr. Sandip Majumdar
CIE Uploaded: 3 Papers in AY 25-26	Zero error in marks
Head Examiner: 2 Papers (CU)	SEC-A2 & DSE-B1(PR) Zone-1

Declaration: Data compiled from College ERP & CU letters for NAAC/IQAC 2025-26.

Sandip Majumdar
Head of the Department
Department of Physics

Dr. Sandip Majumdar
Dept. of Physics

Soma Roy
Principal
Serampore Girls' College
Serampore, Hooghly

Principal
Serampore Girls' College

DEPARTMENT OF PHYSICS - EVEN SEMESTER ROUTINE - 2025-2026 (SEM II / IV / VI)

Time: 9:45-10:45 | 10:45-11:45 | 11:45-12:45 | 12:45-1:45 | 2:00-3:00 | 3:00-4:00 | SM = Dr. Sandip Majumdar

Day	SEM	9:45-10:45	10:45-11:45	11:45-12:45	12:45-1:45	2:00-3:00	3:00-4:00
Monday	II						
	IV						
	VI						
Tuesday	II		MPHS (SM)	MPHS (SM)			
	IV				MPHS (SM)		
	VI					MPHS (SM)	MPHS (SM)
Wednesday	II				MPHS (SM)		
	IV	MPHS (SM)	MPHS (SM)				
	VI						
Thursday	II						
	IV				MPHS (SM)	MPHS (SM)	
	VI		MPHS (SM)	MPHS (SM)			
Friday	II						
	IV					MPHS (SM)	
	VI				MPHS (SM)		
Saturday	II			MPHS(SM)			
	IV		MPHS(SM)				
	VI				MPHS(SM)	MPHS(SM)	

Even Semester: SEM II, IV, VI | SM = Dr. Sandip Majumdar | MPHS = Physics Classes (Theory / Lab as per need) | All classes in Physics Lab unless otherwise mentioned | MDC Course Only | Lunch 1:45-2:00 PM

Dr. Sandip Majumdar
Dept. of Physics

Sandip Majumdar
Head of the Department
Department of Physics

Principal
Serampore Girls' College

Soma Roy
Principal
Serampore Girls' College
Serampore, Hooghly

DEPARTMENT OF PHYSICS - ODD SEMESTER CLASS ROUTINE - 2025-2026

SEM I / III / V | Time: 9:45 AM - 4:00 PM | Teacher Code: SM = Dr. Sandip Majumdar | PLAB = Physics Lab

Day	SEM	9:45-10:45	10:45-11:45	11:45-12:45	12:45-1:45	2:00-3:00	3:00-4:00
Monday	I						
Monday	III						
Monday	V						
Tuesday	I	MPHS CC1(SM)(P) P LAB	MPHS CC1(SM)(P) P LAB				
Tuesday	III		IDC				MPHS(SM) PLAB
Tuesday	V					MPHS-CC6(SM) PLAB	
Wednesday	I			IDC ELTD (IG) VB 8 IDC PHSD (SM)	MPHS CC1(SM) P LAB		
Wednesday	III						
Wednesday	V		MPHS MN4(SM) P LAB				
Thursday	I					IDC ELTD (IG) VB 8 IDC PHSD (SM)	
Thursday	III						MPHS(SM) PLAB
Thursday	V		MPHS MN 3(SM) PLAB	MPHS MN 3(SM) PLAB	MPHS CC6(SM) PLAB		
Friday	I				MPHS(SM) PLAB	CMSM SEC(SM) VB 6	CMSM SEC(SM) VB 6
Friday	III						
Friday	V		MPHS MN 4(SM) PLAB	MPHS MN 4(SM) PLAB			
Saturday	I						
Saturday	III	MPHS CC3 (SM) PLAB					
Saturday	V	MPHS MN 3(SM) PLAB	MPHS CC6(P)(SM) PLAB	MPHS CC6(P)(SM) PLAB			

Legend: SM = Dr. Sandip Majumdar | MPHS = Physics | IDC = Inter Disciplinary Course | ELTD = Electronics | PHSD = Physics | MN = Minor | CC = Core Course | SEC = Skill Enhancement Course | PLAB = Physics Laboratory | VB = Vivekananda Block | MDC Course Only (No Major)

Dr. Sandip Majumdar
Dept. of Physics

Principal
Serampore Girls' College



DEPARTMENT OF PHYSICS
Departmental Activities Report
Academic Session: 2025-2026

6. DEPARTMENTAL ACTIVITIES: A. PARENT-TEACHER MEETING

Session	2025-2026
Event Type	Parent Teacher Meeting
Event Date	21/01/2026
Event Time	12:00 Noon
Venue	Department of Physics, Serampore Girls' College
Subject Teacher / Coordinator	Dr. Sandip Majumdar, Assistant Professor, Dept. of Physics
Number of Attendees	05 (Students of Semester-1 with Guardians)
Course	MDC - Physics (Semester-1)

Objective of the Meeting:

- To show the students' attendance (in %) to their parents/guardians.
- To share the Continuous Internal Evaluation (CIE) results with parents.
- To discuss the overall behavior, discipline and class participation of students.
- To bridge the gap between teachers and guardians for better academic support.

Brief Description:

- Students of Semester-1 (MDC - Physics) were present in the meeting along with their guardians.
- Total 5 students with guardians attended the meeting at 12 noon in the Department of Physics.
- Individual attendance percentage and CIE marks were shown to each parent separately.
- One-to-one communication was conducted by Dr. Sandip Majumdar.

Outcome of the Meeting:

- Discussion about students' studies and progress was made through one-to-one communication.
- Parents were made aware of attendance shortage (if any) and importance of regular attendance.
- Guardians assured to monitor their ward's study at home and encourage regular college attendance.
- Positive feedback received from parents regarding teaching-learning process.
- Plan for remedial support for low-performing students discussed.

Follow-up Action:

- Maintain regular attendance record and inform guardians in case of irregularity.
- Continue CIE assessment and share results with parents in next meeting.
- Provide additional support and mentoring to students as required.


Head of the Department
Department of Physics

Dr. Sandip Majumdar
Subject Teacher & HOD
Dept. of Physics


Principal
Serampore Girls' College
Serampore, Hooghly

Principal
Serampore Girls' College



Serampore Girls' College

(Estd. 1981)

Accredited by NAAC

B ++ Grade | 3rd Cycle

13, T. C. Goswami Street, Serampore, Hooghly, Pin - 712 201, West Bengal

science@seramporegirlscollege.org sgc.scdept@gmail.com

Ref. No.

Date: 3 / 1 / 2026

NOTICE

Parent Teacher Meeting

Department of Physics is going to organize a parent-teacher meeting on 7th January (Wednesday), 2026 from 12:00 p.m. Students of 1st Semester are asked to join the above said meeting with their guardians.

Soma Roy
Principal
Serampore Girls' College
Serampore, Hooghly

Sandip Majumdar
Head of the Department
Department of Physics

Principal
Serampore Girls' College

Principal
Serampore Girls' College
Serampore, Hooghly



Head of the Department
Department of Physics
Serampore Girls' College

Head of the Department
Department of Physics





DEPARTMENT OF PHYSICS (Joint Science) Departmental Activities Report

Academic Session: 2025-2026

6. DEPARTMENTAL ACTIVITIES: D. OPEN HOUSE

Session	2025-2026
Event Type	Open House
Date	06/05/2026
Time	12:00 Noon (12:30 PM in Science Block)
Venue	Room VB-6, Science Block, Serampore Girls' College
Organized By	Departments of Physics, Chemistry, Mathematics, Electronic Science
Coordinator (Physics)	Dr. Sandip Majumdar, Assistant Professor, Dept. of Physics
Course	MDC Physics

Primary 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.

Brief Description:

- The Open House was held on 6th May 2026 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.
- 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.

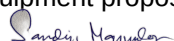
Outcome:

- 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.

Follow-up Action:

- Arrange extra tutorial/remedial classes for complex topics.
- Forward library and ventilation issues to administration.
- Modernize lab equipment proposal to be placed in next departmental meeting.


Head of the Department
Department of Physics

Dr. Sandip Majumdar
Dept. of Physics


Principal
Serampore Girls' College
Serampore, Hooghly

Principal
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) 2652-9394 • (033) 2652-7725 (Principal) • 26623722 (Office) • 2652-0008

E-mail : serampore.college@gmail.com • college.org • sgc.scool@gmail.com

Ref. No. _____

Date. 2.5.2026

NOTICE

Dept. of Computer Science, Electronic Science, Physics, Mathematics have arranged an Open House Discussion for B.Sc. (Major & Minor) students on 6th May, 2026 from 12 noon onwards. Participation of each student are mandatory.

M. 2.5.26.

Principal
Serampore Girls' College
Serampore, Hooghly



Maumita Ghosal
Head of the Department
Department of Computer Science

Indrani Guha
Head of the Department
Department of Electronics

Sandip Majumdar
Head of the Department
Department of Physics



Serampore Girls' College

Department of Sciences

Open House Discussion

2025-26

Date – 06.05.2026

Attendance Sheet

[illegible]

Indrani Guha

Head of the Department
Department of Electronics

Department
Sudip Majumder
Head of the Department
Department of Physics

Teacher's Signature

Maumita Ghosal
Head of the Department
Department of Computer Science

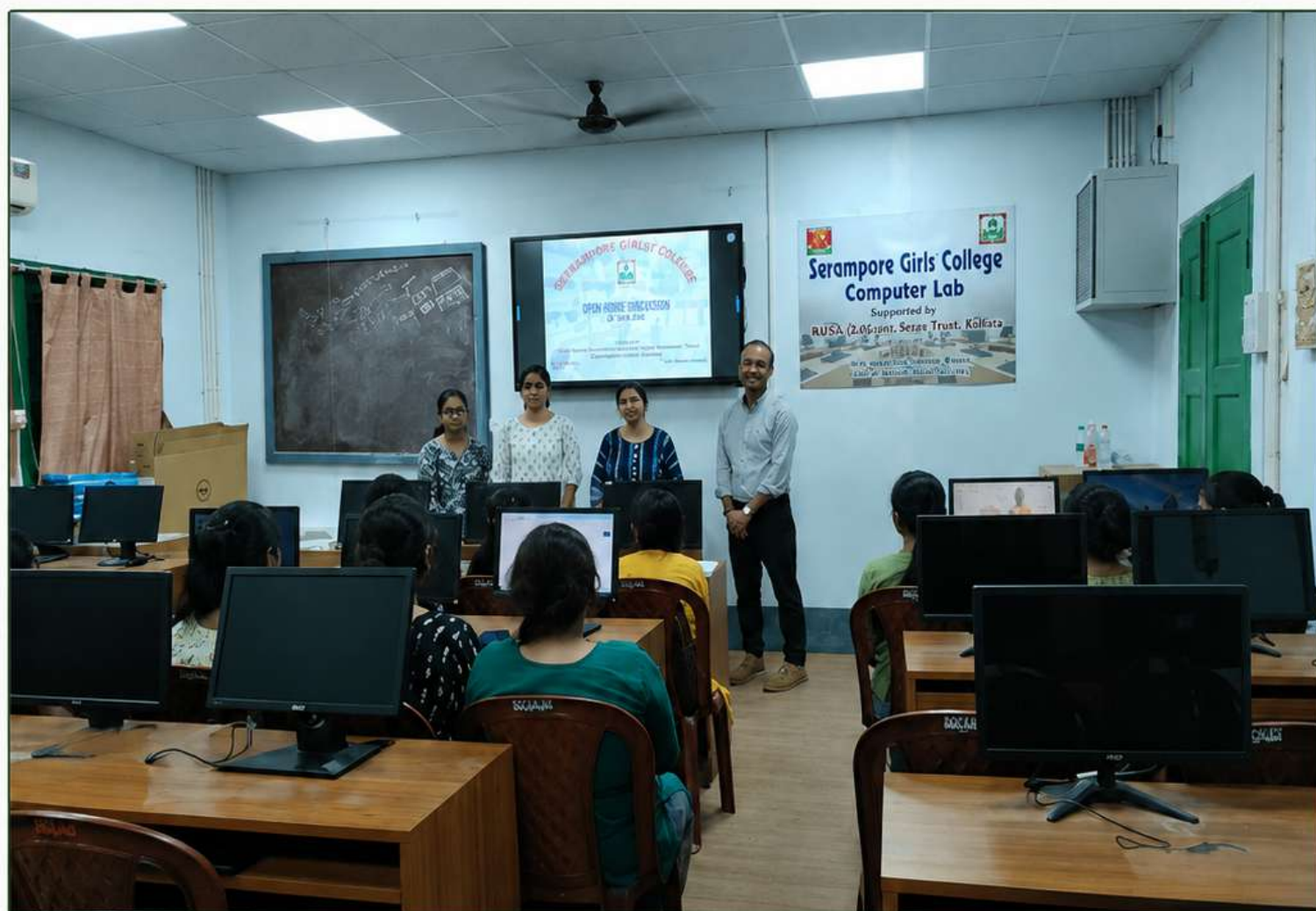




Open House Discussion – Photographic Evidence

Department of Physics

Serampore Girls' College | Academic Session 2025–26



Photograph: Open House Discussion / Interaction with Students

Sandhya Majumdar
Head of the Department
Department of Physics

Head, Dept of Physics





DEPARTMENT OF PHYSICS (Joint with Science Departments) Departmental Activities Report

Academic Session: 2025-2026

6. DEPARTMENTAL ACTIVITIES: C. TEACHERS' DAY CELEBRATION

Session	2025-2026
Event Type	Teachers' Day Celebration
Date	23/12/2025
Time	11:00 a.m. - 3:30 p.m.
Venue	NB-21, Serampore Girls' College
Organized By	Departments of Computer Science, Mathematics, Physics, Electronic Science, Botany, Zoo
Objective	To celebrate Teachers' Day
No. of Attendees	Students: 26 Teachers: 08 Total: 34
Physics Dept. Coordinator	Dr. Sandip Majumdar

Objectives:

- To celebrate Teachers' Day and pay tribute to the teaching community.
- To strengthen the bond between teachers and students.
- To recognize the contribution of teachers in shaping students' lives.
- To provide a platform for students to express gratitude towards their teachers.

Brief Description:

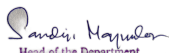
- Teachers' Day was jointly celebrated by seven Science Departments: Computer Science, Mathematics, Physics, Electronic Science, Botany, Zoology and Chemistry on 23/12/2025 at NB-21.
- The programme was held from 11:00 a.m. to 3:30 p.m. with active participation of 26 students and 8 teachers.
- Students organized cultural performances, speeches, and small presentations to honour their teachers.
- The event was coordinated by Dr. Sandip Majumdar from Department of Physics along with other science faculty members.
- Light refreshments were arranged for all participants.

Outcome:

- It enhanced the teacher-student relationship.
- Students expressed their respect and gratitude, creating a positive emotional environment.
- The programme fostered mutual understanding, respect and cooperation between teachers and students.
- Such celebrations motivate students to value education and teachers' guidance.

Follow-up:

- To continue organizing joint departmental celebrations to promote inter-departmental unity.
- To encourage more student participation in cultural and academic events.


Head of the Department
Department of Physics

Dr. Sandip Majumdar
Dept. of Physics


Principal
Serampore Girls' College
Serampore, Hooghly

Principal
Serampore Girls' College



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science@seramporegirlscollege.org sgc.scdept@gmail.com

Ref. No.

Date : 23 / 01 / 2026

NOTICE

Dept. of Mathematics, Physics and Electronic Science have arranged an Educational Tour for B.Sc. (Major / Minor) semester I and III students on **30th January, 2026** (Friday) to Gandhi Museum, Barrackpore. Interested students have to submit **Rs. 300** to Mrs. Nabamita Nath till **25th January, 2026**. Students are requested to carry Identity Card, small tiffin and sufficient Water. Lunch will be provided. Further information can be gathered from the department.

Soma Roy
Principal
Serampore Girls' College
Serampore, Hooghly

Principal
Serampore Girls' College
Serampore, Hooghly

Principal
Serampore Girls' College
Serampore, Hooghly



Sandip Majumdar
Head of the Department
Department of Physics

Head of the Department
Department of Physics
Serampore Girls' College

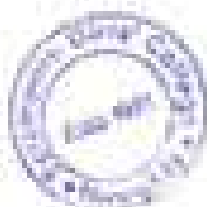
Head of the Department
Department of Physics





Date - 30.01.2026

Abundance Sheet

[illegible]

Teachers' Signature _____



CONTINUOUS INTERNAL EVALUATION (CIE) REPORT

ACADEMIC SESSION : 2025-2026

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Physics

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CIE Marks Upload

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List of Exam Papers

Show10entries

Search:

Paper/ Subject Code	Year	View	Absent List	Upload Date	Delete
MPHS_CC1_CIE_1_Sem_1	2024-25	View	View List	0000-00-00 00:00:00	
MPHS_CC1_CIE_1_Sem_1	2025-26	View	View List	2026-02-09 04:48:23	
MPHS_CC1_CIE_2_Sem_1	2025-26	View	View List	2026-03-11 06:09:30	
MPHS_CC2_CIE_1_Sem_2	2024-25	View	View List	2025-05-20 14:38:23	
MPHS_Minor-Major_CIE_1_Sem_1	2025-26	View	View List	2026-02-25 04:24:53	
Paper/ Subject Code	Year	View	Delete		

Showing 1 to 5 of 5 entries

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2. Sample Marks Statement

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CIE Marks Upload

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Marks Statement : MPHS_Minor-Major_CIE_1_Sem_1

Show10entries

Search:

Sl	Paper/ Subject Code	Name	College Roll	CU Roll	Marks Obtained	% of marks	Remarks	Sub Check
1	MPHS_Minor-Major_CIE_1_Sem_1	ANJALI AHIR	25014	253614-11-0005	16	80 %	Advanced	
2	MPHS_Minor-Major_CIE_1_Sem_1	MAHASWATA BANERJEE	25016	253614-11-0002	15	75 %	Advanced	
3	MPHS_Minor-Major_CIE_1_Sem_1	SUCHETA DESHMUKH	25017	252614-11-0004	13	65 %	Advanced	
4	MPHS_Minor-Major_CIE_1_Sem_1	PRIYA KUMARI	25131	253614-11-0037	13	65 %	Advanced	
6	MPHS_Minor-Major_CIE_1_Sem_1	SOHINI SIL	25132	253614-11-0003	13	65 %	Advanced	
6	MPHS_Minor-Major_CIE_1_Sem_1	MADHURIMA KOLE	25362	253614-11-0007	13	65 %	Advanced	
7	MPHS_Minor-Major_CIE_1_Sem_1	SOLMI DAS	25363	253614-11-0006	11	55 %	Average	

Showing 1 to 7 of 7 entries

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No. of error in marks : 0

Indicates Error in Marks (0)

Under Performer (0)

Well Performer (1)

Average Performer (6)

REPORT SUMMARY

The Continuous Internal Evaluation (CIE) is conducted to ensure regular assessment of students' academic performance through tests, quizzes, assignments and attendance. This report presents the CIE status for the selected paper.

Department

Physics

Course / Paper

MPHS_Minor-Major_CIE_1_Sem_1

Semester

I

Academic Session

2025-2026

LEGEND

Indicates Error in Marks

Under Performer

Well Performer

Average Performer



Principal
Serampore Girls' College

Head of the Department
Department of Physics
Serampore Girls' College





CONTINUOUS INTERNAL EVALUATION (CIE) REPORT

ACADEMIC SESSION : 2025-2026

1. List of Exam Papers

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Search:

Show 10 entries

Paper/ Subject Code	Year	View	Absent List	Upload Date	Delete
MPHS_CC1_CIE_1_Sem_1	2024-25	View	View List	0000-00-00 00:00:00	
MPHS_CC1_CIE_1_Sem_1	2025-26	View	View List	2026-02-09 04:48:23	
MPHS_CC1_CIE_2_Sem_1	2025-26	View	View List	2026-03-11 06:09:30	
MPHS_CC2_CIE_1_Sem_2	2024-25	View	View List	2025-05-20 14:38:23	
MPHS_Minor-Major_CIE_1_Sem_1	2025-26	View	View List	2026-02-25 04:24:53	
Paper/ Subject Code	Year	View	Delete		

Showing 1 to 5 of 5 entries

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2. Sample Marks Statement

Physics

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CIE Marks Upload

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Marks Statement : MPHS_Minor-Major_CIE_1_Sem_1

Show10entries

Search:

Sl	Paper/ Subject Code	Name	College Roll	CU Roll	Marks Obtained	% of marks	Remarks	Sub Check
1	MPHS_Minor-Major_CIE_1_Sem_1	ANJALI AHIR	25014	253614-11-0005	16	80 %	Advanced	
2	MPHS_Minor-Major_CIE_1_Sem_1	MAHASWATA BANERJEE	25016	253614-11-0002	15	75 %	Advanced	
3	MPHS_Minor-Major_CIE_1_Sem_1	SUCHETA DESHMUKH	25017	252614-11-0004	13	65 %	Advanced	
4	MPHS_Minor-Major_CIE_1_Sem_1	PRIYA KUMARI	25131	253614-11-0037	13	65 %	Advanced	
6	MPHS_Minor-Major_CIE_1_Sem_1	SOHINI SIL	25132	253614-11-0003	13	65 %	Advanced	
6	MPHS_Minor-Major_CIE_1_Sem_1	MADHURIMA KOLE	25362	253614-11-0007	13	65 %	Advanced	
7	MPHS_Minor-Major_CIE_1_Sem_1	SOUMI DAS	25363	253614-11-0006	11	55 %	Average	

Showing 1 to 7 of 7 entries

Previous

1

Next

No. of error in marks : 0

Indicates Error in Marks (0)

Under Performer (0)

Well Performer (1)

Average Performer (6)

REPORT SUMMARY

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Department

Physics

Course / Paper

MPHS_Minor-Major_CIE_1_Sem_1

Semester

I

Academic Session

2025-2026

LEGEND

Indicates Error in Marks

Under Performer

Well Performer

Average Performer



Principal
Serampore Girls' College

Head of the Department
Department of Physics
Serampore Girls' College





CONTINUOUS INTERNAL EVALUATION (CIE) REPORT

ACADEMIC SESSION : 2025-2026

3. Sample Question Paper (CIE)

SERAMPORE GIRLS' COLLEGE DEPARTMENT OF PHYSICS

Continuous Internal Examination – II (2026)

Semester I

Paper: MN-1 (Physics Major–Minor)

Date: 13/02/2026

Duration: 2 Hours

Time: 11:00 AM

Full Marks: 50

1.

- (a) Write down the expressions for $\hat{r}$ and $\hat{\theta}$ in terms of $\hat{i}$ and $\hat{j}$. Hence, show that

$$\frac{d\hat{r}}{dt} = \frac{d\theta}{dt} \hat{\theta}.$$

(Symbols have their usual meanings).

- (b) Define reduced mass for a two-body problem. Show that it is less than any one of the masses.
- (c) Write down Kepler's laws.
- (d) What do you mean by streamline flow of an incompressible fluid?
- (e) What is Reynolds number? Explain its significance.

(3+3+2+2+4)

2.

- (a) Show that

$$\iiint_V (\nabla \cdot \vec{r}) dV = 3V,$$

where $\vec{r}$ is the position vector and V is the volume of the region.

- (b) (i) Draw the cylindrical coordinate system (ρ, ϕ, z) .
- (ii) Derive expressions for unit vectors in cylindrical coordinates in terms of Cartesian unit vectors.
- (iii) Prove that these unit vectors are mutually orthogonal.

3.

- (a) (i) Obtain the transformation equations for velocity and acceleration under Galilean transformation.

Confidential



Head Examiner

[In replying, please quote the
number and date of this letter]

From
The Controller of Examinations,
University of Calcutta

Senate House,
kolkata
No. Gen. 19/TH/PHSG/SEC-A2/HE/0001
The 26-December-2025

To,
DR. Sandip Majumdar
(DEPARTMENT OF PHYSICS) SERAMPORE GIRLS COLLEGE
Res: flat 303, Aparna High Apartment, Dey Street, Serapore, Hooghly 712201

8617677448
sandip@seramporegirlscollege.org

Dear Sir / Madam,

I have the honour, by the direction of the Vice-chancellor and Syndicate, to inform you that you have been appointed
Head-Examiner cum Examiner for the following subject, paper & examinations for academic year: 2025

B.A/B.Sc Sem V GENERAL Examination 2025 (under CBCS) SYLLABUS: 2019-2020 CSR-47/19

PHYSICS Paper - PHSG SEC-A2 RENEWABLE ENERGY AND ENERGY HARVESTING - Batch: 1

I desire to draw your special attention to the following provision in the Regulations, of which you are no doubt already aware.

“Examiners are required to keep the result of the examinations and the marks assigned to candidates strictly secret.”

It is desired that you will strictly adhere to the above rule, and is so far as it lies in your power, will secure its observance by the Examiners assisting you. I am to add that if you are approached by or on behalf of any particular candidate to divulge his result or do anything else of an unfair nature, you will be so good as to immediately report the matter to the undersigned, stating the Roll and No of the candidate concerned. Any case of violation of the above rules will be taken serious notice of by the Vice-Chancellor and syndicate.

Acceptance of assignments to act as Paper Setter/Moderator/Co-ordinator/HE/Examiner/Scrutineer is mandatory vide Syndicate resolution Item No. 10 dated 13.07.2018, and thus no declination of assignment shall be entertained.

Enclosures :-

1) Syndicate Resolution Item No. 10 dated 13.07.2018

Yours faithfully,

Controller of Examinations

Confidential



Head Examiner

[In replying, please quote the
number and date of this letter]

From
The Controller of Examinations,
University of Calcutta

Senate House,
Kolkata
No. Gen. 19/PRAC/PHSG/DSE-B1/HE/0001
The 19-May-2026

To,
Sandip Majumdar
(DEPARTMENT OF PHYSICS) SERAMPORE GIRLS COLLEGE
Res: flat 303, Aparna High Apartment, Dey Street, Serapore, Hooghly 712201

8617677448
sandip@seramporegirlscollege.org
**You are requested to submit an instruction of the mentioned paper by mail id cugeneral.coe@gmail.com or hard copy at General
Section, Darbhanga Building, 2nd Floor, University of Calcutta within 22.05.2026**

Dear Sir / Madam,

I have the honour, by the direction of the Vice-chancellor and Syndicate, to inform you that you have been appointed
Head-Examiner cum Examiner for the following subject, paper & examinations for academic year: 2026

B.A/B.Sc Sem VI General Examination 2026 (under CBCS) SYLLABUS: 2019-2020 CSR-47/19

PHYSICS Paper - PHSG DSE-B1(PR) DIGITAL ELECTRONICS Zone: 1

I desire to draw your special attention to the following provision in the Regulations, of which you are no doubt already aware.

“Examiners are required to keep the result of the examinations and the marks assigned to candidates strictly secret.”

It is desired that you will strictly adhere to the above rule, and is so far as it lies in your power, will secure its observance by the
Examiners assisting you. I am to add that if you are approached by or on behalf of any particular candidate to divulge his result or
do anything else of an unfair nature, you will be so good as to immediately report the matter to the undersigned, stating the Roll
and No of the candidate concerned. Any case of violation of the above rules will be taken serious notice of by the Vice-Chancellor
and syndicate.

**Acceptance of assignments to act as Paper Setter/Moderator/Co-ordinator/HE/Examiner/Scrutineer is mandatory vide Syndicate
resolution Item No. 10 dated 13.07.2018, and thus no declination of assignment shall be entertained.**

Enclosures :-

1) Syndicate Resolution Item No. 10 dated 13.07.2018

Yours faithfully,

Controller of Examinations



24-06-2026

UNIVERSITY OF CALCUTTA**Practical Assignment List for the Session 2026
B.A/B.Sc Sem VI General (under CBCS)****Subject :PHSG Paper: DSE-B1(PR) Zone: 1 SYLLABUS: 2019-2020 CSR-47/19****HEAD EXAMINER: Sandip Majumdar (SERAMPORE GIRLS COLLEGE) Mob: 8617677448 Email: sandip@seramporegirlscollege.org****CHARU CHANDRA COLLEGE(051)**

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	DR. Tajkera Khatun CHARU CHANDRA COLLEGE	7044546145	tajkerakhatun88@gmail.com

GURUDAS COLLEGE(313)

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Role	Examiner/College	Phone No	Email ID
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FAKIR CHAND COLLEGE(551)

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	SRI SHIBSHANKAR NANDI FAKIR CHAND COLLEGE	9874112105	nandishibshankar61@gmail.com

BIDHAN CHANDRA COLLEGE, RISHRA(611)

Role	Examiner/College	Phone No	Email ID
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	DR. Soumya Saha BIDHAN CHANDRA COLLEGE, RISHRA	7699519611	ssphy.bccr@gmail.com

STUDENT INTERNSHIP REPORT - MACHINE LEARNING USING PYTHON (8th June - 9th July 2025) - SEMESTER 4 - TOTAL 18 STUDENTS

NAME	STREAM	CU REG NO	COLLEGE ROLL	SEM	DOMAIN	Start	End
Swarnali Mitra	B.Sc COMP SC 4Y (MAJOR)	614-1211-0261-24	243614-11-0009	4	ML using Python	8-Jun	9-Jul
Joymita Kar	B.Sc COMP SC 4Y (MAJOR)	614-1211-0262-24	243614-11-0010	4	ML using Python	8-Jun	9-Jul
Riddhi singh	B.Sc COMP SC 4Y (MAJOR)	614-1211-0259-24	243614-11-0007	4	ML using Python	8-Jun	9-Jul
Leena Paul	B.Sc COMP SC 4Y (MAJOR)	614-1214-0255-24	243614-11-0013	4	ML using Python	8-Jun	9-Jul
Ankita Polen	B.Sc COMP SC 4Y (MAJOR)	614-1214-0223-24	243614-11-0012	4	ML using Python	8-Jun	9-Jul
Suhani kumari	B.Sc COMP SC 4Y (MAJOR)	614-1211-0219-24	243614-11-0001	4	ML using Python	8-Jun	9-Jul
Shital sharma	B.Sc COMP SC 4Y (MAJOR)	614-1211-0260-24	243614-11-0008	4	ML using Python	8-Jun	9-Jul
Nilam yadav	B.Sc COMP SC 4Y (MAJOR)	614-1211-0623-24	243614-11-0046	4	ML using Python	8-Jun	9-Jul
Rajani Bhagat	B.SC (MDC) 3Y	614-1214-0602-24	243614-12-0025	4	ML using Python	8-Jun	9-Jul
Manisha Nalla	B.Sc COMP SC 4Y (MAJOR)	614-1211-0222-24	243614-11-0003	4	ML using Python	8-Jun	9-Jul
Payel kumari jha	B.SC (MDC) 3Y	614-1211-0601-24	243614-12-0023	4	ML using Python	8-Jun	9-Jul
Ankita Santra	B.Sc COMP SC 4Y (MAJOR)	614-1211-0226-24	243614110005	4	ML using Python	8-Jun	9-Jul
Kamalika Ghosh	B.Sc COMP SC 4Y (MAJOR)	614-1211-0224-24	243614-11-0004	4	ML using Python	8-Jun	9-Jul
Madhu	B.Sc COMP SC 4Y (MAJOR)	614-1211-0622-24	243614-11-0045	4	ML using Python	8-Jun	9-Jul
Varsha shaw	B.Sc COMP SC 4Y (MAJOR)	614-1214-0220-24	243614-11-0011	4	ML using Python	8-Jun	9-Jul
Aditi Chakraborty	B.Sc COMP SC 4Y (MAJOR)	614-1211-0256-24	243614-11-0006	4	ML using Python	8-Jun	9-Jul
Banani Ghosh	B.Sc COMP SC 4Y (MAJOR)	614-1211-0221-24	243614-11-0002	4	ML using Python	8-Jun	9-Jul
Gulnar Parveen	B.SC (MDC) 3Y	614-1211-0609-24	243614-12-0024	4	ML using Python	8-Jun	9-Jul

Total: 18 (15 Major + 3 MDC) | Domain: Machine Learning using Python | Duration: 8 Jun - 9 Jul 2025 | Coordinator: Dr. Sandip Majumdar | Session: 2025-26

Dr. Sandip Majumdar
Coordinator

Sandip Majumdar
Head of the Department
Department of Physics

HOD, Computer Science

Principal, Serampore Girls' College

Soma Roy
Principal
Serampore Girls' College
Serampore, Hooghly



CONTINUOUS INTERNAL EVALUATION (CIE) REPORT

ACADEMIC SESSION : 2025-2026

5. Internship Details (Department of Physics)

5.3 Sample Internship Marks (2025-2026)



Module No-132, Gr. Floor, SDF Building
Sector-V, Salt Lake, Kolkata-700091
Phone: 033-4007 3507
Mobile : +91 96744 89000 / 96747 35470
Email : ardent.kolkata@gmail.com

EVALUATION OF INTERNSHIP OF DEPARTMENT OF COMPUTER SCIENCE - SERAMPORE GIRLS'S COLLEGE

Sl No.	NAME	STREAM	CU REGI STRATIO N NUMB ER	COLLEGE R OLL_NO	SEMES TER	INTERNSHIP_DOMAI N	PROJECT NOTE BOOK MARKS (50)	PROJECT VIVA MARKS (25)
1	Swarnali Mitra	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1211- 0261-24	243614- 11-0009	4	Machine Learning using Python	45	20
2	Joymita Kar	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1211- 0262-24	243614- 11-0010	4	Machine Learning using Python	43	21
3	Riddhi singh	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1211- 0259-24	243614- 11-0007	4	Machine Learning using Python	46	19
4	Leena Paul	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1214- 0255-24	243614- 11-0013	4	Machine Learning using Python	45	21
5	Ankita Polen	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1214- 0223-24	243614- 11-0012	4	Machine Learning using Python	47	20
6	Suhani kumari	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1211- 0219-24	243614- 11-0001	4	Machine Learning using Python	45	22
7	Shital sharma	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1211- 0260-24	243614- 11-0008	4	Machine Learning using Python	47	20
8	Nilam yadav	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1211- 0623-24	243614- 11-0046	4	Machine Learning using Python	42	19
9	Rajani Bhagat	B.SC (MDC) 3 YEARS	614- 1214- 0602-24	243614- 12-0025	4	Machine Learning using Python	45	22
10	Manisha Nalla	B.Sc COMPUTER SCIENCE 4 YEARS (MAJOR)	614- 1211- 0222-24	243614- 11-0003	4	Machine Learning using Python	46	18



Pradeep Majumdar



CONTINUOUS INTERNAL EVALUATION (CIE) REPORT

ACADEMIC SESSION : 2025-2026

5. Internship Details (Department of Physics)

5.4 Internship Notebook (Sample)

Internship Notebook

on

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under

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ANKITA POLEN

DEPARTMENT : COMPUTER SCIENCE

CU REGISTRATION NO : 614-1214-0223-24

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under the guidance of

SOURAV GOSWAMI
(INTERNSHIP MENTOR)

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10	Data Science using Python (Data Science and Data Visualisation using Python)	- Learn Data Science Basics - Start Coding in Python - Clean & Prepare Real Data - Explore Data with EDA - Visualise Insights with Python - Understand Statistics for Data - Begin with Machine Learning - Work on a Real Data Project	All
11	Artificial Intelligence and Machine Learning using Python (Master AI & ML with Python — Build Smart Solutions)	- Learn AI & ML Basics - Code AI Models with Python - Prep & Engineer Data Smartly - Master Supervised Learning - Explore Unsupervised Techniques - Evaluate & Improve Models - Get Started with Deep Learning - Build a Real AI/ML Project	All
12	RDBMS with hands-on analytics using MySQL (RDBMS for handling databases)	- Learn Database Basics - Design Clean, Normalised Tables - Master Core SQL Commands - Work with Data Types & Rules - Use Joins & Subqueries Easily - Analyse Data with SQL - Create Views for Faster Insights - Build a Real Database Project	All
13	Professional Certificate in ITR E-Filing Mastering Taxation, GST & E-Filing: Practical Guide (Master GST & E-Filing with Confidence)	- Tax Basics Made Easy - Know Direct & Indirect Taxes - Compute Income Tax Accurately - Understand GST & Compliance - Plan Taxes Smartly - Master E-Filing & Online Returns - Learn Audits & Compliance Reporting Returns - Tax Audits, Assessments, and Compliance Reporting	Commerce, Economics, Business Administration
14	Job-Ready Financial Accounting with Tally (Master Tally. Master Accounting. Get Job-Ready)	- Learn Accounting Basics - Get Hands-On with Tally - Create Companies & Manage Ledgers - Record Daily Transactions Easily - Handle GST & Tax Compliance - Manage Payroll & Inventory - Generate Financial Reports - Apply Skills in a Real Project	Commerce, Economics, Business Administration



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Meet – IDC Physics examination - whu-kmgw-wws

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MEETING DURATION
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PARTICIPANTS
8

AVG. TIME IN CALL
00:16:41

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Notes No notes yet

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(HH:MM:SS)



Ayushi Prasad

7:00 PM

00:15:51



Beauty Yadav

7:01 PM

00:17:04



Bhumi Mishra

7:03 PM

00:15:04



Dr. Sandip Majumdar

6:57 PM

00:22:09



Prerna Raj

7:05 PM

00:13:24



Sandip Majumdar

6:51 PM

00:28:17



Simran Shah

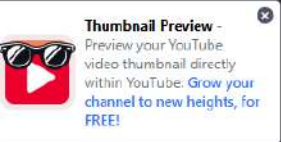
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00:18:40



Sritama Das

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6. Online Class (Google Meet) Attendance Record

Meet - IDC Physics examination - whu-kmgw-wvs

Feb 6:51 PM - 7:19 PM

MEETING DURATION: 00:26:17 | PARTICIPANTS: 8 | AVG. TIME IN CALL: 00:16:41

Notes: No notes yet

Search by participant name

NAME	FIRST SEEN AT	TIME IN CALL (HH:MM:SS)
Ayushi Prasad	7:00 PM	00:15:51
Beauty Yadav	7:01 PM	00:17:04
Bhumi Mishra	7:03 PM	00:15:04
Dr. Sandip Majumdar	6:51 PM	00:26:09
Perna Raj	7:05 PM	00:13:24
Sandip Majumdar	6:51 PM	00:28:17
Simran Shah	7:00 PM	00:19:40
Srisha Das	7:02 PM	00:03:02

Attendance Summary

Class / Activity	IDC Physics examination
Platform	Google Meet
Meeting Code	whu-kmgw-wvs
Date	16 February 2026
Time	6:51 PM – 7:19 PM
Total Duration	00:26:17
Total Participants	8
Average Time in Call	00:16:41

Participant-wise Attendance

Sl. No.	Participant Name	First Seen At	Time in Call (HH:MM:SS)
1	Ayushi Prasad	7:00 PM	00:15:51
2	Beauty Yadav	7:01 PM	00:17:04
3	Bhumi Mishra	7:03 PM	00:15:04
4	Dr. Sandip Majumdar	6:51 PM	00:26:09
5	Perna Raj	7:05 PM	00:13:24
6	Sandip Majumdar	6:51 PM	00:28:17
7	Simran Shah	7:00 PM	00:19:40
8	Srisha Das	7:02 PM	00:03:02



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DR. SANDIP MAJUMDAR

Serampore Girls' College, Hooghly, West Bengal

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PAPER

Temperature-dependent performance analysis of junctionless gate-all-around WSe₂ nanowire MOSFET at $L_g = 10$ nm for IoT applications

Sandip Majumdar*

Department of Physics, Serampore Girls' College, Serampore, Hooghly, West Bengal 712201, India

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Keywords: junctionless MOSFET, gate-all-around, WSe₂, nanowire, temperature dependence, IoT, ballistic transport, subthreshold swing, short-channel effects

Abstract

The rapid growth of internet of things (IoT) ecosystems demands semiconductor devices combining ultra-low power consumption with robust thermal stability across wide operating temperature ranges. This work thoroughly investigates a junctionless gate-all-around tungsten diselenide (WSe₂) nanowire MOSFET with channel length $L_g = 10$ nm and nanowire diameter $D_{NW} = 3$ nm over 200 K to 400 K, using the ballistic top-of-the-barrier (ToB) model implemented via FETtoy 2.0 on the nanoHUB platform. The device employs a high- κ HfO₂ gate dielectric ($t_{ox} = 2$ nm), uniform n-type channel doping of $N_D = 10^{19}$ cm⁻³, and supply voltage $V_{DS} = 0.5$ V, consistent with sub-0.6 V IoT operational standards. Four critical figures of merit—threshold voltage (V_{th}), subthreshold swing (SS), drain-induced barrier lowering (DIBL), and I_{ON}/I_{OFF} ratio—are extracted and analysed as functions of temperature. The WSe₂ channel band structure is independently validated using DFT/GGA-PBE calculations with Quantum ESPRESSO. SS increases from 41.8 mV dec⁻¹ at 200 K to 83.6 mV dec⁻¹ at 400 K, closely tracking the kT/q thermal limit with a deviation of less than 4.3 mV dec⁻¹ throughout. The I_{ON}/I_{OFF} ratio value of 1.29×10^{12} at 300 K decreases to 1.90×10^9 at 400 K, remaining well above the 10^6 minimum for digital logic at all temperatures. V_{th} remains stable at 0.212 V across the entire 200–400 K range, yielding a temperature coefficient of 0.00 mV K⁻¹ which is direct consequence of the junctionless volume-depletion mechanism. DIBL increases from 28.8 mV V⁻¹ at 200 K to 106.0 mV V⁻¹ at 400 K, remaining below the 100 mV V⁻¹ acceptability threshold up to 350 K. The optimal IoT operating window is identified as 200–350 K, where all four figures of merit simultaneously satisfy their performance criteria, establishing WSe₂ as a strong candidate for thermally robust sub-10 nm IoT transistor

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22 July 2026

Ballistic Transport in n-type MoTe₂ Junctionless Gate-All-Around Nanowire FETs: Temperature-Dependent Performance, CMOS Complementarity, and Benchmarking

Author: SANDIP Majumdar   | [Authors Info & Affiliations](#)

<https://doi.org/10.22541/authorea.15003102/v1>

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Abstract

Ballistic-transport simulations of an n-type MoTe₂ junctionless gate-all-around (JL-GAA) nanowire FET with 20 nm gate length and 2 nm HfO₂ gate dielectric are reported. At 300 K the device achieves $I_{ON} = 41.58 \mu\text{A}/\mu\text{m}$, $I_{ON}/I_{OFF} = 2.87 \times 10^{10}$, and $SS_{min} = 62.76 \text{ mV/dec}$ (within 4.6% of the $\alpha=0.95$ thermal limit). I_{ON} varies by $<0.5\%$ over 200-400 K, confirming ballistic quantum transport. Pairing with a WSe₂(p) JL-GAA FET gives switching threshold $V_M = 0.377 \text{ V} \approx V_{DD}/2$ with symmetric noise margins. The MoTe₂ JL-GAA device achieves the best normalised performance across SS , $DIBL$, and I_{ON} relative to all benchmarked Si and TMD FETs, confirming the advantage of the ballistic gate-all-around architecture with high κ dielectric

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1 Method of Images

1.1 Concept

The **Method of Images** is a powerful technique to solve Poisson's equation for systems with conducting boundaries. Instead of solving the differential equation with complex boundary conditions, we replace the conducting surface by fictitious *image charges* located outside the region of interest. The solution is valid if:

1. The image charges reproduce the same boundary conditions (e.g., $V = 0$ on a grounded conductor).
2. The uniqueness theorem guarantees that this constructed solution is the *only* one.

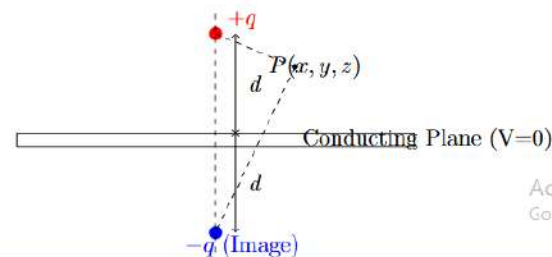
1.2 Application: Point Charge near an Infinite Grounded Conducting Plane

1.2.1 Physical Setup

A point charge $+q$ is placed at a perpendicular distance d from an infinite grounded ($V = 0$) conducting plane occupying the $z = 0$ plane. The region of interest is $z > 0$.

1.2.2 Image Construction

We remove the conductor and place an image charge $-q$ at $(0, 0, -d)$, i.e., symmetrically behind the plane.



1.2 Principle of the Method of Images

Goal: Find $V(\mathbf{r})$ for $z > 0$ with a grounded conducting plane at $z = 0$ and a point charge q at $(0, 0, d)$.

- Region of interest: $z > 0$ half-space. Plane is equipotential $V = 0$.
- We seek V satisfying: (i) $\nabla^2 V = -(q/\epsilon_0)\delta(x)\delta(y)\delta(z-d)$ for $z > 0$, (ii) $V = 0$ at $z = 0$, (iii) $V \rightarrow 0$ as $r \rightarrow \infty$.
- Replace plane + induced charge by image charge $q' = -q$ at $(0, 0, -d)$ in non-physical region $z < 0$. Remove conductor; now we have two charges in free space. For $z > 0$, the potential of this two-charge system happens to satisfy same PDE and boundary conditions, hence by uniqueness it is the solution.
- **Restriction:** Image charges must lie outside region of interest, otherwise they would introduce extra source violating Poisson equation inside.

FIG 1.1 – METHOD OF IMAGES CONSTRUCTION

PHYSICAL REGION $z > 0$ ONLY

