

Curriculum Vitae



Personal Details

Name: Dr. Dibyendu Kumar Ghosh

Father's Name: Sri Swapn Kumar Ghosh

Mother's Name: Srimati Kabita Ghosh

Permanent Address: Vill. – Hargram, P.O. – Hargram, P.S. – Bhatar, Dist. – Purba Bardhaman (East Burdwan), West Bengal, Pin – 713125

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Date of birth: 16/03/1996

Nationality: Indian

Gender: Male

Marital Status: Married

Career Objective

To become an integral part of an institution that may endorse my continuous learning process by providing various challenges and concurrently utilize my skills to accomplish the institutional goals.

Current Status

Working as an Assistant Professor in the Department of Electrical Engineering at the Swami Vivekananda University since 01.01.2026.

Teaching Experience

Served as an Assistant Professor in the Department of Electrical Engineering at the Academy of Technology from 06.02.2024 to 24.12.2025.

Academic Qualification

- Passed Madhyamik (X) from Hargram Umasundari Public High School under West Bengal Board of Secondary Education (W.B.B.S.E) with 87.375% marks in 2011.
- Passed Higher Secondary (XII) from Bhatar Madhav Public High School under West Bengal Council of Higher Secondary Education (W.B.C.H.S.E) with 80% marks in 2013.
- Passed B.Tech in Electrical Engineering from Calcutta Institute of Engineering and Management under Maulana Abul Kalam Azad University of Technology (Formerly known as West Bengal University of Technology) with a DGPA of 8.68 in 2017.
- Passed M.Tech in Renewable Energy Science and Technology from Indian Institute of Engineering Science and Technology, Shibpur with 90.65% marks in 2019, Ranked 2nd (M. Tech thesis title: “**Development of Different Metal Oxides through Sputtering for Application in Thin Film Silicon Solar Cells and Different Gas Sensors**”).
- Completed Ph.D. on 17th October, 2025, under the prestigious MNRE (Ministry of New and Renewable Energy, Government of India) fellowship at SAMGESS

(School of Advanced Materials, Green Energy and Sensor Systems), IEST (Indian Institute of Engineering Science and Technology), Shibpur under the supervision of Prof. Anindita Sengupta (Professor, Department of Electrical Engineering, IEST, Shibpur) and Dr. Sumita Mukhopadhyay (Assistant Professor, School of Advanced Materials, Green Energy and Sensor Systems, IEST, Shibpur).

Research Area

- Advanced material fabrication, characterization and application
- Advanced solar cells
- Thin films and nanotechnology
- Photovoltaics
- Gas Sensing

List of Research Publications

Journals:

1. **Dibyendu Kumar Ghosh**, Sukanta Bose, Gourab Das, Shiladitya Acharyya, Anupam Nandi, Sumita Mukhopadhyay, Anindita Sengupta, “Fundamentals, Present Status and Future Perspective of TOPCon Solar Cells: A Comprehensive Review”, *Surfaces and Interfaces*, vol. 30, 2022, 101917, doi:10.1016/j.surfin.2022.101917.
2. **Dibyendu Kumar Ghosh**, Anupam Nandi, Sukanta Bose, Gourab Das, Arindam Kole, Sumita Mukhopadhyay, Vivek Kumar Singh, Uttam Sharma, Santanu Das, Nillohit Mukherjee, “Pseudostoichiometric and Oxygen Deficient MoO_x for Efficient Sensing of H₂S and CO at Relatively Low Operating Temperature and Analyte Concentrations”, *Surfaces and Interfaces*, vol. 33, 2022, 102261, doi:10.1016/j.surfin.2022.102261.
3. **Dibyendu Kumar Ghosh**, Shiladitya Acharyya, Sukanta Bose, Gourab Das*, Sumita Mukhopadhyay, Anindita Sengupta, “A Detailed Theoretical Analysis of TOPCon/TOPCore Solar Cells Based on p-type Wafers and Prognosticating the Device Performance on Thinner Wafers and Different Working Temperatures”, *Silicon*, vol. 15, pp. 7593–7607, 2023, doi:10.1007/s12633-023-02606-0.
4. **Dibyendu Kumar Ghosh**, Sukanta Bose, Gourab Das, Sumita Mukhopadhyay, Anindita Sengupta, “Realization of Performance Enhancement of Single Junction a-Si:H Solar Cells by Applying ITO/AZO Bilayer TCO Films as Front Electrode”, *Journal of Material Science: Materials in Electronics*, vol. 34, 2189, 2023, doi:10.1007/s10854-023-11570-9.
5. **Dibyendu Kumar Ghosh**, Gourab Das, Sukanta Bose, Sumita Mukhopadhyay, Anindita Sengupta, “Unveiling the Photovoltaic Performance and Thermal Stability of n-TOPCon, p-TOPCon, and TOPCoRE Solar Cells Based on 110 μm Wafers”, *Energy Technology*, vol. 12, no. 8, 2400238, 2024, doi:10.1002/ente.202400238.
6. **Dibyendu Kumar Ghosh**, Shiladitya Acharyya, Sukanta Bose, Gourab Das, Sumita Mukhopadhyay, Anindita Sengupta, “Analysis of Advanced TiO₂/Si based Solar Cell Architecture: Improving PV Parameters and Thermal Stability”, *Silicon*, vol. 16, pp. 5029–5042, 2024, doi:10.1007/s12633-024-03063-z.
7. **Dibyendu Kumar Ghosh**, Sukanta Bose, Arindam Kole, Arijit Bardhan Roy, Subrata Mandal, Sanatan Chattopadhyay, Sumita Mukhopadhyay, and Anindita Sengupta, “Fabrication of High Quality 100 nm ITO Thin Films in Argon Plasma for Potential Opto-electronic Applications”, *IEEE Transactions on Plasma Science*, vol. 53, no. 12, pp. 3658 – 3667, 2025, doi:10.1109/TPS.2025.3622913.
8. **Dibyendu Kumar Ghosh**, Shiladitya Acharyya, Sukanta Bose, Gourab Das,

Sumita Mukhopadhyay, Anindita Sengupta, “Exploring the possible pathways for enhancing the photovoltaic performance of ITO/Si heterojunction solar cells”, *Energy Technology*, vol. 14, e202501208, 2026, doi:10.1002/ente.202501208.

9. Shiladitya Acharyya, Sourav Sadhukhan, Tamalika Panda, **Dibyendu Kumar Ghosh**, Gourab Das, Nabin Chandra Mandal, Anupam Nandi, Sukanta Bose, Santanu Maity, Partha Chaudhuri, Hiranmay Saha, Dipali Banerjee, “Dopant-free materials for carrier selective passivating contacts solar cells: A review”, *Surfaces and Interfaces*, vol. 28, 101687, 2022, doi:10.1016/j.surfin.2021.101687.
10. Shiladitya Acharyya, Sourav Sadhukhan, Tamalika Panda, **Dibyendu Kumar Ghosh**, Nabin Chandra Mandal, Anupam Nandi, Sukanta Bose, Gourab Das, Dipali Banerjee, Santanu Maity, Partha Chaudhuri, Hiranmay Saha, “Performance analysis of different dielectrics for solar cells with TOPCon structure”, *Journal of Computational Electronics*, vol. 21, no. 2, pp. 471-490, 2022, doi:10.1007/s10825-022-01866-0.
11. Shiladitya Acharyya, **Dibyendu Kumar Ghosh**, Dipali Banerjee, Santanu Maity, “Analyzing the operational versatility of advanced IBC solar cells at different temperatures and also with variation in minority carrier lifetimes”, *Journal of Computational Electronics*, vol. 23, no. 6, pp. 1170–1194, 2024, doi:10.1007/s10825-024-02232-y.
12. Snehal Mondal, Gaurav Jhaa, **Dibyendu Kumar Ghosh**, Souradeep De, Santanu Maity, “From Lattice Distortion and Moisture Stability to Tandem Performance: First-Principles Guided Design of Cs/Br-Alloyed FAPbI₃ for Perovskite/TOPCon Solar Cells”, *Surfaces and Interfaces*, Manuscript ID: SURFIN-D-26-10401, 2026. **(Communicated)**.

Book Chapters:

1. **Dibyendu Kumar Ghosh**, Arijit Pangas, Shiladitya Acharyya, Sukanta Bose, Gourab Das, Sumita Mukhopadhyay, and Anindita Sengupta, “Introduction to Characterization and Fabrication Techniques Employed for Advanced Solar Cell Structures”, In book: *Revolutionizing Solar Energy Harvesting: Advanced Semiconductor Devices and Technology with Artificial Intelligence and Machine Learning Integration*, 1st Edition Chapter: 2, *Taylor and Francis*, pp. 28-62, July, 2025, doi: 10.1201/9781003515784-2.
2. Aumareddy Sandeep Kumar Reddy, Sukanya Ghosh, Tulika Srivastava, **Dibyendu Kumar Ghosh**, and Arijit Bardhan Roy, “Improvement of solar cell performance using metamaterials through bandgap engineering”, In book *Advanced Photonic Devices for Energy and Sensing Applications*, 1st Edition, *CRC Press*, 2026, doi:10.1201/9781003654667.
3. Dibyendu Kumar Ghosh, "Electrical and Electronics Measurements", In book: *Electrical Machines, Power Electronics, and Sustainable Energy Systems*, pp.22-31, Jan, 2026, ISBN No:-978-93-5635-586-6.
4. Dibyendu Kumar Ghosh, "Solar Thermal Energy Storage", In book: *Sunlight to Electricity: Solar Energy Technologies*, pp. 52-55, Feb 2026, ISBN No: - 978-93-5692-695-0.
5. Dibyendu Kumar Ghosh, “Instrument Transformers”, pp. 63-66, Aug, 2026, In book “*Switchgear, Protection, And Power System Safety*, ISBN No:- 978-93-6068-650-5.

Conferences:

1. **Dibyendu Kumar Ghosh**, Senjuti Das, Priyaranjana Santra, Shiladitya

Acharyya, Sukanta Bose, “Investigating the Photovoltaic Performance and Thermal Stability of AZO/Si Hetero-junction Solar Cells”, *First International Conference on Advanced Innovations in Engineering, Science and Technology (AIEST-2024)*, AIEM, 2024.

2. Shiladitya Acharyya, **Dibyendu Kumar Ghosh**, Sukanta Bose, Santanu Maity, “Realization of an innovative high efficiency n-TOPCon solar cell using a lower band gap dielectric oxide”, *First International Conference on Advanced Innovations in Engineering, Science and Technology (AIEST-2024)*, AIEM, 2024.
3. Arnab Das, **Dibyendu Kumar Ghosh**, Rohit Bose and Soumya Chatterjee, “Electric Stress Analysis of a Contaminated Polymeric Insulating Surface in Presence of Dry Bands”, *2016 International Conference on Intelligent Control Power and Instrumentation (ICICPI)*, 2016, pp. 89 – 92, doi: 10.1109/ICICPI.2016.7859680.

Published Conference Abstracts:

1. **Dibyendu Kumar Ghosh***, Sukanta Bose, Gourab Das, Arindam Kole, Sumita Mukhopadhyay, Hiranmay Saha, “Development of ITO/AZO bilayer and application as front electrode in a-Si:H solar cells”, *IWPSD- 2019, Dec 17-20, Springer Proceedings*.
2. Sukanta Bose, Kausturi Chatterjee, Gourab Das, Arindam Koley, Jayasree Roy Sharma, Anupam Nandi, Nabin Chandra Mandal, **Dibyendu Kumar Ghosh**, Nillohit Mukherjee, Sumita Mukhopadhyay, Partha Chaudhuri, Hiranmay Saha, “Application of ITO/Ag₂S nano-particles/ITO structure as back reflector layer for efficiency enhancement of thin film μ c-Si solar cells”, *IWPSD- 2019, Dec 17-20, Springer Proceedings*.

Colloquium:

1. **Dibyendu Kumar Ghosh**, Sumita Mukhopadhyay, Anindita Sengupta, “Potential Application of Semiconductor/Metal Oxides in Solar Photovoltaics”, *Young Scientist Colloquium, Materials Research Society of India – Kolkata Chapter*.

National Seminar:

1. **Dibyendu Kumar Ghosh**, Shiladitya Acharyya, Sukanta Bose, Gourab Das, Sumita Mukhopadhyay, and Anindita Sengupta, “Exploring the root causes of the photovoltaic performance of p-TOPCon solar cells”, NSGEET-2025.

Faculty Development Programme Attended

1. AICTE Training and Learning (ATAL) Academy faculty development program on Pioneering the Future of Healthcare: Robotics, Deep Learning, and Emerging Tech. at Academy of Technology from 02nd December to 07th December, 2024.
2. 2-Day Seminar on “Med-Tech Magic: Transforming Healthcare for a Better Tomorrow” under the esteemed AICTE VANNI scheme, at Academy of Technology on 15th November to 16th November, 2024.
3. One-week International online faculty development program on “Disruptive Technologies (IoT, Quantum Computing, Biomedical, 6G, AI)” organized by Abacus Institute of Engineering & Management from 2nd May to 7th May 2025.
4. Completed FDP on “Non-Conventional Energy Resources” – January to April, 2026 (12 weeks) funded by Ministry of Education, Govt. of India.

Training Undergone

- ✓ 15 days training on power distribution at Amtala Substation under West Bengal State Electricity Distribution Company Limited (W.B.S.E.D.C.L) in 2015.
- ✓ “Recent Advancements in Organic and NanoElectronics”, RAONE – 2023, organized by the Department of Electronics and Communication Engineering, SRM Institute of Science and Technology, Kattankulathur in association with CReST Center, Chang Gung University, Taiwan.

Reviewer/Examiner

- ✓ Contributed as a Reviewer in Scientific Reports, Nature.
- ✓ Contributed as a Reviewer in Optical and Quantum Electronics, Nature.
- ✓ Contributed as a Reviewer in the First International Conference on Advanced Innovations in Engineering, Science and Technology (AIEEST-2024) organized by Abacus Institute of Engineering & Management on 28th & 29th October, 2024.
- ✓ Served as External Examiner of Electrical Engineering Department (Electrical Machine Lab_PC-EE-491 & Power System II Lab_PC-EE-692) of Calcutta Institute of Engineering and Management for Practical/Sessional Examination of Even Semester 2024 conducted by MAKAUT on 28.05.2024.

Skill Set

Soft Skills:

- Leadership
- Communication
- Time management
- Active listening

Additional Information

Subject of Interest:

- Basic Electrical Engineering
- Solar Photovoltaics
- Control System
- Electrical Machines

Hobbies:

- Playing and watching cricket
- Watching football
- Watching movies

Language Proficiency

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| • English | Full professional proficiency |
| • Hindi | Native proficiency |
| • Bengali | Mother tongue |

Extracurricular Activities:

- Served as Class Representative during M.Tech tenure (2017–2019).
- Served as Departmental Student Secretary for the academic sessions 2021–22 and 2022–23 at IEST Shibpur.
- Former Member of the General Council of Students’ Senate, IEST Shibpur.
- Served as an Organizing Member of Azadi Ka Amrit Mahotsav (AKAM), 2021, IEST Shibpur.

- Member of Teaching Learning Centre (TLC) and Institute-Industry Interactive (III) cell at the Academy of Technology.
- Served as committee member of various events organized by the Academy of Technology.
- Served as class teacher in the Department of Electrical Engineering at the Academy of Technology.
- Served as a Committee Member of the e-Magazine Committee, Academy of Technology.
- Served as Departmental NPTEL Coordinator, Department of Electrical Engineering, Swami Vivekananda University.

Awards:

- Awarded prestigious **MNRE** (Ministry of New and Renewable Energy, Government of India) fellowship for pursuing M.Tech and Ph.D.
- Secured a Top 5% Topper position in the NPTEL-SWAYAM course "Non-Conventional Energy Resources" (Jan–Apr 2026), conducted by the National Programme on Technology Enhanced Learning (NPTEL), offered by the Indian Institute of Technology Madras (IIT Madras).
- Received “*Sarad Samman 2011, Bhatar Block*” for securing top positions at block level in Madhyamik examination.
- Received “*Amul Vidya Shree 2011*” for securing 1st position at school level in Madhyamik examination.
- Zonal level (East and North-East India) topper in Mathematics in Srinivasa Ramanujan Mathematical Competitive Examination 2014-15-Engineering Category (Student level) organized by the Indian Society for Technical Education.
- Received various awards for securing top positions in different quiz competitions at block level.

References:

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3. Mr. Subhamoy Roy

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