CURRICULUM VITAE

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Objective: -

My area of expertise and research interests include **optical gates, Opto-electronic devices, optical sensor, fiber optics, photonics and other related areas**. I am proficient in various software and hardware tools used in this field. I have published several articles in journals and presented my work at various conferences.

I am deeply passionate about teaching and research, and I strive to improve my knowledge and skills constantly. **Currently, I am working as a Guest Faculty in the Electronics and Communication Engineering Department at Techno College of Engineering Agartala, having joined on August 12, 2024.**

Personal Profile

DOB	: 21\11\1993
SEX	: Male
Marital Status	: Unmarried
Nationality	: Indian
Language Known	: English, Hindi and Bengali
Caste	: SC
Religion	: Hindu

Educational Qualifications:

PhD: **Date of awarded: 13/10/2025**
University: Tripura University
Area of Research: Electro-opto devices (ECE)
Marks obtained: 8.75 (Course Work Examination)

Post-Graduation: **(M. Tech) (2016-2018)**
Branch: Electronics and Communication Engineering.
University: Tripura University
Marks obtained: 82.9 % (8.29)

Graduation: (B.E) (2012-2016)
Branch: Electronics and Telecommunication Engineering.
College: Tripura Institute of Technology
University: Tripura University
Marks obtained: 68.9 % (6.89)

Key skill & Knowledge: -

1. Core branch subject like Basic Electronics, Communication, Digital & Analog Circuit, Optical Communication, Optical Network, IoT etc.
2. Good efficiency using the lab equipment.
3. Good knowledge in OPTICAL Lab Experiment.

Software Knowledge: -

1. Matlab/Octave
2. Opti FDTD
3. RSOFT
4. LTspice
5. Scilab ETC.

Work Experience: -

- Worked as a Freelancer for **Gate content development** in **Adda 247** for different subjects of Electronics and Communication Engineering.
- **Working as Guest Lecturer, Tripura University, Department of Information technology**

List of Publications

Research papers published in Refereed Scopus/SCI indexed Journals: 8

1. 40 Gbps Hexagonal 16QAM Using Silicon Microrings for Green Optical Interconnects: Modeling and Performance Study. **Optical Engineering (accepted) (SCI)**
2. **Das, S.,** Sinha, N., Bin, A. R., Rakshit, J. K., Pal, S., & Bhowmik, B. B. (2023). Microring assisted Mach–Zehnder interferometric structure based electro-optic adder for photonic integrated circuits. ***Optical and Quantum Electronics***, 55(12), 1119. https://doi.org/10.1007/s11082-023-05450-z **(SCI)**
3. Debnath, S., **Das, S**., Sinha, N., Singha, S., & Bhowmik, B. B. (2024). Generation of an optical 8APSK modulator using silicon microrings in add-drop configuration. ***Optical Engineering.*** **https://doi.org/10.1117/1.OE.63.3.035110 (SCI)**
4. **Das, S.,** Sinha, N., Pal, S., & Bhowmik, B. B. (2022). An electro-optic reconfigurable OR to Ex-OR gate based on microring resonator loaded on Mach–Zehnder interferometric structure. ***Results in Optics***, *9*, 100299**.** https://doi.org/10.1016/j.rio.2022.100299 **(SCOPUS)**
5. Sinha, N., **Das, S.,** Debnath, S., Singha, S., Pal, J., Pal, S., & Bhowmik, B. B. (2024). Realization of 2-Bit Multiplier based on Vedic Mathematics using Electro-absorption Microring Modulator. ***Optical Engineering. (Accepted)*** **(SCI)**
6. Rahaman, M., **Das, S.,** Bhowmik, B. B., & Debnath, S. (2022). Implementation of optical Half-Subtractor using micro ring resonator loaded Mach–Zehnder structure. ***Materials Today: Proceedings***, 65, 2631-2635. https://doi.org/10.1016/j.matpr.2022.04.967 **(SCOPUS)**
7. Debnath, S., **Das, S.,** Sinha, N., Pal, S., & Bhowmik, B. B. (2024). Implementation of electro-optic XOR and XNOR gates using dual silicon microring resonator assisted MZI structure, **Intercations (SCOPUS)**
8. **Das, S**., Singha, S. & Bhowmik, B. B. (2019). Design and simulation of opto-fluidic sensor based on ring resonator for the quality testing of diesel oil defiled by kerosene. ***Journal of the Tripura Mathematical Society***, *20*(1), 122–128 **(Refereed journal)**

Conference Publications: 13

1. Kumar, C**., Das, S**., Singha, S., Bhowmik, B. B., & Sarkar, J. (4 to 8 December 2023). IoT in Health Sector: An optical sensor for detection of tuberculosis in suspected patients' blood sample. ***2023 IEEE Globecom: The Second workshop on A4E: AI/ML for Edge/Fog Networks part of the 2023 IEEE Global Communications Conference (GLOBECOM)***, Kuala Lumpur, Malaysia. **https://doi.org/10.1109/GCWkshps58843.2023.10465182**
2. ***Das, S**., Debnath, K., Debnath, S., Sinha, N., & Bhowmik, B. B. (November 24-26, 2023). Re-configurable Optical XNOR to XOR Gate based on Silicon Microring resonator. ***3rd IEEE Conference on Applied Electromagnetics, Signal Processing and Communication (AESPC 2023),*** Bhubaneswar, India. 10.1109/AESPC59761.2023.10389915
3. ***Das, S.,** Debnath, S., Sinha, N., & Bhowmik, B. B. (October 10-12, 2023). Electro-optic Half Adder using three MRRs loaded on MZI structure. ***In Higher education and research towards a transformative and sustainable society (HERTSS), National Conference***, Tripura University, India.
4. Roy Bin, A., ***Das, S.,** Debnath, K., & Bhowmik, B. B. (2020). Wavelength dependent Configurable optical AND to OR Gate based on Micro Ring Resonator loaded on Mach–Zehnder Structure. ***35th Indian Engineering Congress, the Institution of Engineers (India)*** (pp. 941-946). https://www.ieindia.org/webui/ajax/Downloads/WebUI_PDF/IEC/IEC_35.pdf
5. Dey, S.,***Das, S.,** Das, K., Sinha, N., Debnath, S., Majumder, S., & Bhowmik, B. B. (January 31 - February 2, 2024). Proposal of a new structure for realization of an electro-optical NOR gate using Silicon Micro Ring Resonator. ***The Fourth International Conference on Materials Science (ICMS2024)***. Organized by the Department of Physics, Tripura University (A Central University).

6. Das, K., ***Das, S**., Dey, S., Debnath, S., Sinha, N., & Bhowmik, B. B. (January 31 - February 2, 2024). Designing and simulation of reconfigurable optical OR to XOR gate based on Silicon micro ring resonator. ***The Fourth International Conference on Materials Science (ICMS2024)***. Organized by the Department of Physics, Tripura University (A Central University).
7. Singha, S., **Das, S**., Sinha, N., & Bhowmik, B. B. (2024, January 31 - February 2). In-situ microring resonator-based optical sensor for detection of honey adulterants. ***The Fourth International Conference on Materials Science (ICMS2024)*****,** Department of Physics, Tripura University (A Central University).
8. Debnath, S., Acharjee, R., **Das, S**., Sinha, N., & Bhowmik, B. B. (2024, January 31 - February 2). *Implementation of electro-optic XOR and XNOR gates using dual silicon microring resonator assisted MZI structure***. *In Proceedings of the 4th International Conference on Materials Science (ICMS2024)*,** Department of Physics, Tripura University (A Central University).
9. Sinha, N., Debnath, S., **Das, S.,** & Bhowmik, B. B. (October 10-12, 2023). A Novel Approach to 1: N Binary Bit Addition Using Optical Electroabsorption Micro-Ring Modulator. ***In Higher education and research towards a transformative and sustainable society (HERTSS), National Conference***, Tripura University, India.
10. Debnath, S., **Das, S**., Singha, S., Sinha, N., Bhowmik, B. B., Piramanayagam, S., & Mahudapathi, P. (2022). IoT in smart farming for controlling and monitoring temperature using MRR based optical sensor. ***IEEE COMSOC MMTC Communications - Frontiers***, 17(5), 4-9.
11. Singha, S., Sinha, N., **Das, S.,** Debnath, S., & Bhowmik, B. B. (2021, December). Re-configurable higher order optical modulation format generator based on microring modulator. ***In 2021 IEEE International Conference on Telecommunications and Photonics (ICTP) (pp. 1-4). IEEE***. https://doi.org/10.1109/ICTP53732.2021.9744185.
12. Debbarma, P., **Das, S**., & Bhowmik, B. B. (2021). A Study of Micro-ring Resonator-Based Optical Sensor. ***Applications of Internet of Things: Proceedings of ICCCIOT 2020 (pp. 59-65). Springer Singapore***. https://link.springer.com/chapter/10.1007/978-981-15-6198-6_6.
13. Debnath, K., **Das, S**., Bin, A. R., & Bhowmik, B. B. (2020). A Brief Study of Optical Flip-flops based on Microring Resonator. ***In Technical Volume of the 35th Indian Engineering Congress (pp. 919-924).*** Presented at the conference held on December 18-20,2020. https://www.ieindia.org/webui/ajax/Downloads/WebUI_PDF/IEC/IEC_35.pdf

Summary of Qualifications: -

1. Hands-on experience at the graduation and post-graduation level education facility.
2. Outstanding ability to handle syllabus at the undergraduate and graduate curriculum.
3. Remarkable ability to teach, inspire and develop young people.
4. Strong organizational skills and proficient with MS office tool.

Summer training attended: -

1. **Name:** Airports Authority of India, Agartala **Topic:** Communication, navigation and surveillance.
2. **Name:** CTTC, Bhubaneshwar, Odisha **Topic:** Embedded system.

Awards & Rewards:-

- Certify of participating and winning **as best presenter award in "National Level Conference on Engineering Problems and application of mathematics 2016.**
- Participated in the short-term course on Photonics and Photovoltaics: Devices, Circuits, and Metrology conducted by Department of Electronics and Electrical Engineering under the Quality Improvement Programme (QIP) sponsored by **AICTE / Ministry of Human Resource Development, Government of India,** during December 11-24, 2020.
- Participated in the Familiarization Workshop on Nanofabrication Technologies, Indian Nanoelectronics Users' Programme - Idea to Innovation held at **IIT Bombay** during January 19-21, 2022.
- Certify of Member of International Association of Engineers **(IAENG).**

- Certify of best paper award **3rd International Conference on Intelligent Systems, Advanced Computing and Communication (ISACC)** 27-28 Feb. 2025. **Multi-Wavelength Enhanced Optical Half-Adder Circuit Using MRR assisted with Mach–Zehnder Interferometric Structure**

Declaration: -

I do hereby declare that all the statements furnished above are true and complete to the best of my knowledge and belief.

Place: Agartala Srikanta Das

Date: 16/02/2026