

# Tanmoy Goswami

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[Linkedin](#) | [ORCiD](#) | [ResearchGate](#) | [Portfolio](#)

## ACADEMIC

B.Sc. Engineering in **Civil and Environmental Engineering**  
Shahjalal University of Science and Technology (SUST)  
**CGPA – 3.28/4.00 (3.59/4.00 in Final Semester)**

January 2020 – October 2025  
Sylhet, Bangladesh

Higher Secondary School Certificate (H.S.C)  
Sylhet Government College  
**GPA – 5.00/5.00**

June 2017 – June 2019  
Sylhet, Bangladesh

Secondary School Certificate (S.S.C)  
Nabin Chandra High School  
**GPA – 5.00/5.00**

January 2015 – February 2017  
Kulaura, Bangladesh

- Thesis Title:* Effect of Aggregate Size and Shape on the Mechanical Properties of Self-Compacting Concrete (SCC)
- Supervisor:* Prof. Dr. Mushtaq Ahmed

## RESEARCH INTERESTS

- Compound flooding
- Urban flood risk analysis
- Environmental protection & sustainability
- Machine learning and uncertainty analysis
- Sustainable concrete materials
- multi-objective optimization

## RESEARCH EXPERIENCE

### Project 1: Effect of Aggregate Size and Shape on the Mechanical Properties of Self-Compacting Concrete (SCC)

**Timeline:** March 2024 – June 2025

- Key Focus:** Investigates the influence of coarse aggregate size (8mm–20mm) and shape (angular vs. rounded) on the compressive strength, tensile strength, and flexural behavior of SCC. Employs laboratory experiments and finite element modeling (FEM) using ABAQUS to analyze stress distribution and failure modes.
- Application:** Provides insights into optimizing aggregate characteristics to improve SCC performance in structural applications. Supports data-driven mix design decisions for high-performance concrete with enhanced workability and durability, especially in complex formworks and congested reinforcement zones.
- Tools/Skills:** OpenLCA, Ecoinvent v3.10 (Background database), Cost analysis, Environmental Modelling.
- Supervisor:** Prof. Dr. Mushtaq Ahmed

### Project 2: Understanding Compound Flooding Dynamics: A Study of the Surma River in Sylhet.

**Timeline:** November 2024 – Present

- Key Focus:** Investigates the interplay of multiple flood drivers (rainfall, urban runoff, antecedent soil moisture, and evaporation) in contributing to compound flooding events. Applies Copula-based modeling to simulate joint dependencies and employs a Bayesian Belief Network (BBN) using GeNIe for probabilistic analysis, sensitivity assessment, and scenario evaluation.
- Application:** Aids in understanding complex flood generation processes in urban river basins. Supports data-driven flood forecasting, emergency preparedness, and climate-resilient urban planning for Sylhet and similar flood-vulnerable regions.
- Tools/Skills:** Bayesian Network, GeNIe, Machine Learning, Probabilistic Modelling.
- Supervisor:** Prof. Dr. Ahmad Hasan Nury

## PUBLICATIONS

- Pritom, N. D., and Goswami, T., “Predicting Vehicular SO2 Emissions using Artificial Neural Networks and Mamdani Fuzzy Logic: A Comparative Analysis.” International Journal of Computer Applications (PhD Focus), Volume 186, no. 37 (2024). <https://doi.org/10.5120/ijca2024923945>
- Effect Of Size And Shape Of Coarse Aggregate On Self-Compaction Concrete (Tanmoy Goswami, Md. Sojibur Rahman Sojib, , Dr. Mushtaq Ahmed, Mohaiminul Haque) | Submitted to Proceedings of the 8th International Conference on Civil Engineering for Sustainable Development (ICCESD 2026), 5–7 February 2026, KUET, Khulna, Bangladesh (Under Review)
- Flood Level Prediction Using Artificial Neural Network and Random Forest with Multivariate Hydrometeorological Inputs: A Case Study of Sylhet, Bangladesh | (Tanmoy Goswami, Nixon Deb Pritom, Dr. Ahmed Hasan Nury, Md. Imam Hossain) | Submitted to Proceedings of the 8th International Conference on Civil Engineering for Sustainable Development (ICCESD 2026), 5–7 February 2026, KUET, Khulna, Bangladesh (Under Review)
- Forecasting the Severity of Traffic Accidents in Highway Using Random Forest, Bayesian Network and XGBoost | (Nixon Deb Pritom and Tanmoy Goswami) | KFUPM Journal of Undergraduate Research International ([Under Review](#)).

- Predicting Highway Accident Blackspot using GIS and Predictive Modelling | (Nixon Deb Pritom, Kuman Borshopriyo, and Tanmoy Goswami) | Transportation Safety Research, Lund University Journal, ([Under Review](#))

PROFESSIONAL EXPERIENCE

- **Research Assistant** 07.2024 – Present  
Shahjalal University of Science and Technology Research Center

EXTRACURRICULAR ACITIVITIES

- **Piano Teacher** 01.2025 – 07.2025  
Aaj School  
Shahjalal University of Science and Technology
- **Football Team Captain** 03.2022 – 02.2025  
Departmental Team  
Department of CEE, SUST
- **Lead Singer** 08.2024 – 11.2024  
Band Kornov  
Shahjalal University of Science and Technology
- **Mentor** 09.2023 – 11.2023  
Annual Cultural Program  
Department of CEE, SUST
- **Transportation Secretary** 02.2022 – 04.2023  
Association of Civil and Environmental Engineering  
Shahjalal University of Science and Technology

MEMBERSHIPS

- **Aaj Muktomancho** | General Member 06.2020 – 05-2022
- **Sports Sust** | General Member 04.2020 – 05.2022
- **Model United Nation (MUN) SUST** | Volunteer 09.2022 – 06.2025
- **Graduate Development Network SUST** | General Member 07.2022 – 12.2024
- **Association of Civil and Environmental Engineering** | General Member 02.2021 – 04.2025

TECHNICAL SKILLS

- **Software:** MATLAB, ArcGIS, Google Earth Engine, SWMM, HEC-RAS, Abaqus, Ansys, InfraWorks, AutoCAD, SPSS, ETABS, GRASP, GeNIe Modeler, Uninet
- **Computational Modelling:** Artificial Neural Network (ANN), Bayesian Inference, Bayesian Neural Network (BNN), Convolutional Neural Network (CNN), Fuzzy Logic
- **Programming:** Python, MATLAB
- **Machine Learning Models:** Random Forest, XGBoost, Support Vector Machine, Artificial Neural Network
- **Database:** Google Earth Engine, (BMD), BWDB, USGS Earth Explorer, HydroSHEDS, Copernicus (DEM), NASA SRTM, ECMWF, APHRODITE.
- **Libraries & Frameworks:** TensorFlow, PyTorch, scikit-learn.
- **Hands-on experience:** Microsoft Word, Advance Excel, PowerPoint, and Adobe Illustrator

TEACHING EXPERIENCE

- **Online and In-person Teaching** | Science Teacher Sylhet, Bangladesh | 08.2020 – Present  
Class eight to twelve, and university admission
- **Creative Coaching Center** | Science Teacher Sylhet, Bangladesh | 08.2023 – 02.2024  
Class nine to twelve, and university admission

STANDARDIZE TEST SCORES

International English Language Testing System (IELTS)				15 <sup>nt</sup> November, 2025
Overall	Reading	Listening	Speaking	Writing
7.5	8.5	8.5	7	6.5

REFEREES

- Dr. Mushtaq Ahmed  
Professor  
Shahjalal University of Science and Technology  
Email: [mushtaq-cee@sust.edu](mailto:mushtaq-cee@sust.edu)
- Dr. Ahmad Hasan Nury  
Professor

Shahjalal University of Science and Technology  
Email: [hasan-cee@sust.edu](mailto:hasan-cee@sust.edu)

- Mohaiminul Haque  
Assistant Professor  
Shahjalal University of Science and Technology  
Email: [mohaiminul-cee@sust.edu](mailto:mohaiminul-cee@sust.edu)