

Dr. Zeenat Ara

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Career Objective

To contribute to quality technical education and research in Civil Engineering with specialization in Water Resources, Hydrology, Remote Sensing, and GIS, while enhancing student learning and academic excellence.

Educational Qualifications

- Ph.D. in Civil Engineering (Water Resources) – National Institute of Technology Patna
- M.Tech (Water Resources Engineering) – Indian Institute of Technology Delhi, 2008
- B.E. (Civil Engineering) – R.P.S. Institute of Technology, Patna, 2006

Areas of Specialization

- Water Resources Engineering
- Hydrological Modelling (SWAT)
- Remote Sensing & GIS
- Watershed Management

Academic Projects

Ph.D. Research

- Water Balance Modeling of Command Area between Gandak and Burhi Gandak River using SWAT Model

M.Tech Projects

- Land Use Classification using Remotely Sensed Images (2007)
- Hydrological Impact of Land Use Change using ERDAS & ILWIS (2008)
- Runoff Estimation from Satellite Images using ILWIS Software.
- Climate and Land Use Change Impact Assessment

B.E. Project

- Planning, Analysis and Design of a Three-Storeyed Hospital Building

Research Publications (Journals)

- Ara, Z. (2019). Statistical Analysis of Rainfall in Bihar. *Springer Nature Applied Sciences*.
- Ara, Z. (2023). Environmental Protection Measures for Unplanned Land Use and Land Cover Changes in a Subbasin of the Ganga River System. *Nature Environment and Pollution Technology*, 22(3).
- Ara, Z. (2023). Hydrology Modeling of Gandak River Basin Watershed Using SWAT Model. *Journal of Propulsion Technology*.
- Ara, Z. (2025). SWAT Modeling to Assess Water Availability in the Command Area of the G

Book Chapters

- Ara, Z. (2020). Water Management and Water Governance. Springer (Water Science & Technology Library, Vol. 96).
- Ara, Z. (2022). River and Coastal Engineering.
- Ara, Z. (2023). Water, Land, and Forest Susceptibility and Sustainability.
- Ara, Z. (2023). Geospatial and Soft Computing Techniques
- andak River Basin, India. *Journal of Water Management and Modelling*, 33.

Faculty Development Programs (FDPs) & Training

- MATLAB Applications in Engineering and Science (2020)
- Machine Learning and Deep Learning Applications in Engineering (2020)
- Application of Remote Sensing & GIS in Civil Engineering (2020)
- Sustainable Environment – An Engineering Perspective (2020)
- ICT Tools for Teaching and Learning (MeitY, Govt. of India)
- NEP Orientation & Sensitization Programme (2024)
- Computational Intelligence in Civil Engineering (2025)
- Optimisation Techniques in Water Supply System Design (NIT Warangal, 2025)

Workshops & Professional Training

- Urban Flood Management Training – BITS Pilani Hyderabad Campus
- Research Methodology Workshop
- Remote Sensing & GIS Applications Workshop
- Statistical Analysis with Excel Training
- LI-COR Environmental Eddy Covariance & Soil Gas Exchange Training (Indonesia, 2025)

Conferences & Paper Presentations

- International Conference on Wetlands and Water Resources for Sustainable Development (WET-WAR 2025 INTERNATIONAL).in NIT Patna
- International conferences(AsiaFlux Conference 2025) in Indonesia
- ACACE Conference, Osmania University – Paper Presenter
- NCWES Conference, JNTU Hyderabad – Paper Presenter
- International Conference on Sustainable Development Through Sciences and Technology, Maulana Azad National Urdu University – Paper Presenter

Membership of Professional Bodies

- Editorial Board Member – The Indian Society for Hydraulics (2018–till date)

Key Responsibilities And Contributions

- Question Paper Setter
- Examination In-Charge (Polytechnic)
- Time Table In-Charge
- Advanced Survey Lab In-Charge

- Engineering Mechanics Lab In-Charge
 - IQAC Committee Member
 - Anti-Ragging Committee Member
 - R&D Committee Member
 - Syllabus Design Committee Member (CBCS Pattern)
 - Student Induction Programme Organizer
 - Project Coordinator – Azad Tek Fest
 - Polling Officer (University Level)
 - Verification Officer – Polytechnic Entrance Test
 - Worked as a member of Hindi Club.
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- Worked as Incharge -Industrial Training for final year Diploma in Civil Engineering.
 - Worked as Incharge -Industrial visit for final year Diploma in Civil Engineering.
 - Worked as an Examination In-charge at Polytechnic, MANUU.
 - Worked as an Attendance Coordinator, Polytechnic, and MANUU.

Resource Person Roles

- Faculty Development Programmes on Application of Computational Intelligence in Civil Engineering
- One-Week Online Faculty Development Program (FDP) on “Next-Gen Civil Engineering: AI & IoT Applications for Sustainable Construction (NGAI-2025)
- Azad Day Celebration Programme, MANUU
- Workshop on Applications of Remote Sensing & GIS to Engineering Problems (2024)

Chair Person Role

- International Conference on Wetlands and Water Resources for Sustainable Development (WET-WAR 2025 INTERNATIONAL).in NIT Patna

IT Skills:

- MS office, MS-project, AutoCAD, Staad-Pro
- FORTRAN, Matlab, GIS software (Geomedia, Arc Gis),
- ERDAS software, ILWIS 3.3., HEC-RAC3.3,
- Flow master (FMW), Breach Software, Dam Break Analysis,

ACHEIVEMENT

- Qualified GATE-2006 with 97.8 percentile. (All India Rank 215)
- Departmental rank Second in B.E (Civil Engg.)

