Md Nazmul Hassan

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Education

Military Institute of Science and Technology (MIST) Mirpur Cantonment, Dhaka
BSc, Nuclear Science and Engineering February, 2019 - April, 2023
Cumulative GPA: 3.43/4.00

Standardized Test Scores

GRE			
Total	Quantitative	Verbal	Analytical
307	155	152	3.5

IELTS				
Overall	Listening	Reading	Writing	Speaking
7.5	8.5	7.5	6.5	7

Research Experience

- **Undergraduate Research work (Project)** July 2021 - January 2022
  - Project title: Development of a Radiation Detection and Assistant Robot.
    - Developed a remote radiation monitoring robot utilizing a GM counter, featuring real-time data telemetry, location tracking, and composite lead shielding for the control electronics and radiation source storage. This project was funded by the Department of Nuclear Science and Engineering at MIST, Dhaka.
  - Research Supervisor: Md. Sifatul Muktadir, Assistant Professor, Department of Nuclear Science and Engineering, MIST, Dhaka.

- **Undergraduate Research Work (Thesis)** January 2022 - March 2023
  - Thesis title: Synthesis and Characterization of Zinc and Yttrium Doped Lithium Magnesium Borate ($LiMgBO_3$) for Thermoluminescence Dosimetry.
    - Synthesized Zinc and Yttrium-doped $LiMgBO_3$, assessed physical properties with XRD, FTIR, and TEM. After irradiating with a Co-60 (Gamma) source, the thermoluminescence (TL) response was studied using a TL reader, including glow curves, dose response, and sensitivity.
  - Research Supervisor: Dr. Md. Al-Mamun, Principal Scientific Officer, Materials Science Division, Atomic Energy Centre, Dhaka, Bangladesh Atomic Energy Commission.
  - Currently working as a research assistant at Dr. Al-Mamun's lab, continuing the research.

Publications

- Muktadir, M. S., **Hassan, M. N.**, Siddique, M. S., Nur, D. N., Hossain, A., & Chowdhury, A. T. (2024). Design and Development of a Radiation Survey and Rescue Robot with Shielding of Electronic Equipment from Radiation Damage with Image Radiation Mapping Facility. International Journal of Nuclear Security, 9(2), 4.
- Rahat, M. R., Mimi, H. A., Islam, S. A., Kamruzzaman, M., Hasnat, M. A., **Hassan, M. N.**, ... & Rahman, A. M. (2025). Optimized LiZnBO3 phosphor as a promising candidate for low dose radiation dosimetry. Nuclear Engineering and Technology, 57(6), 103427.
- **Hassan, M. N.**, Yousuf, F., Rahat, M. R., Muktadir, M. S., Hossain, S., Razzak, M., Hamd, Z. Y., Khandaker, M. U., Rahman, A. M., & Al-Mamun, M. (2025). Exploring the effect of Zn doping on

the thermoluminescence behavior of lithium magnesium borate. Journal of Radiation Research and Applied Sciences, 18(3), 101787. https://doi.org/10.1016/j.jrras.2025.101787.

- Rahat, M. R., **Hassan, M. N.**, Muslima, U., Kamruzzaman, M., Hossain, S., Al-Mamun, M., ... & Khandaker, M. U. (2025). Thermoluminescence study of electron-irradiated $LiZnBO_3$ phosphor for dosimetry application. Nuclear Engineering and Technology, 103832.
- Siddique, F. S., Sinha, K. G., Safin, S. I., Islam, S. A., **Hassan, M. N**., Hasnat, M. A., ... & Al-Mamun, M. (2025). Exploring Dysprosium Doped Lithium Strontium Borate Based Phosphor for Dosimetry Application. Journal of Alloys and Compounds, 183628.
- "Hydrothermal vs. Sol-gel Auto Combustion: A Comparative Study of Structural and Magnetic Properties in Graphene Oxide-CoNiFe2O4 Nanocomposites": under review, Materials Chemistry and Physics

Skills and Interests

Engineering Software: Autodesk Fusion 360, Origin, X'pert HighScore plus, ImageJ.

Programming: C, Python, MATLAB, OpenMC, Geant4.

Leadership & Teamwork Experience

MIST Nuclear Engineering Club

President October 2022 – May 2023

- Managed club activities and growth, organizing exciting activities to cultivate interest in nuclear science and technology.
- Arranged a comprehensive competition focused on nuclear and radiological case studies, encompassing various aspects of nuclear and radiological incidents.
- Coordinated the "Nuclear Marathon," an interactive event designed to foster collaboration and cognitive engagement through games like radiation source finding, nuclear quizzes, and treasure hunts.

Additional Experience

- Attended the 4th International Conference on Energy and Power, published an abstract, and won the best poster award in the poster presentation competition held in December 2022 at MIST, Dhaka.
- Completed the Medical Imaging and Radiotherapy certification course focused on Quality Assurance (QA) and an industrial visit to Ahsania Mission Cancer & General Hospital, Uttara, Dhaka - Learnt QA's importance and industry standards in medical physics, from October 25 to November 1, 2022.
- Attended and completed an industrial training program on Quality Assurance (QA) and Quality Control (QC) held on March 22, 2022, at SAJ Engineering & Trading Company- Learnt industry standards for QA and QC in Bangladesh.
- Attended and completed an industrial training program focused on Non-Destructive Testing (NDT) methods. Held at the NDT division, Atomic Energy Centre, Dhaka, from March 13 to March 20, 2022, and had hands-on experience with state-of-the-art NDT equipment and techniques like Radiographic Testing, Ultrasonic Testing, Magnetic Particle Testing etc.
- Attended and completed an industrial training program focused on the 3 MW TRIGA Mark 2 Research Reactor, conducted at the Atomic Energy Research Establishment (Center for Research Reactor), Dhaka, from February 27 to March 3, 2022 - learned about various experimental facilities, reactor operation, radioisotope production, and safety practices.

Research Interest

- Radiation Effects on Materials & Radiation Dosimetry.
- Nuclear Materials & Material Characterization.