

MD. IBRAHIM HOSSAIN KHAN

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EDUCATION

Bachelor of Science in **Industrial and Production Engineering** *August 2021 – October 2025*
Islamic University of Technology (CGPA-3.81/4.00) Dhaka, Bangladesh

- Relevant Courses: Manufacturing Processes, Ergonomics and Safety Management, CAD / CAM, Operation Research, Manufacturing Planning and Control, Machine Tools, Product design I & II, Reliability & Maintenance, Material Handling & Maintenance Management.

Higher Secondary Certificate *2018-2020*
Dhaka College (GPA-5.00)

Secondary School Certificate *2018*
Ideal School & College (GPA-5.00)

RESEARCH INTEREST

- Additive and Advanced Manufacturing
- Compliant Mechanisms, Topology Optimization
- 2D Materials (MD) & Computational Modeling
- Medical Device Design & Assistive Technologies
- Ergonomics, Human Factors Engineering
- Smart and Hybrid Manufacturing

PROFESSIONAL EXPERIENCE

BJIT Limited | Mechanical Design Engineer | Dhaka, Bangladesh *April, 2026- Present*

- Conduct reverse engineering of industrial grade components using 3D scanned data to develop accurate models for design verification.
- Analyze dimensional deviations, defects, and quality to assess the condition of machine parts for maintenance, support quality control, and ensure machinery reliability.

Karnaphuli Fertilizer Company Limited (KAFCO) | Internship | Chittagong, Bangladesh *June, 2024*

- Completed 10-day industrial training at KAFCO, Bangladesh's largest multinational joint venture company.
- Gained insights into production, procurement, manufacturing, packaging, and transportation processes.

Gyre Engineering | Product Development & Design Intern | Bangladesh *September 2022 – March 2023*

- Interned at Gyre Engineering, designing and optimizing customer-focused products for functionality and quality.
- Designed a fingerprint casing system that is suitable for production and a sensor-carrying box for water-level monitoring, showcasing excellent problem-solving abilities and user needs.

PUBLICATIONS

- Reducing Hand-Arm Vibration Through Anthropometric- Based Ergonomic Design of a Power-Driven Hand Drill (3rd ICMMP-2025 | Paper ID:253| Processing for AIP Publishing)** *November 2025*
 - A unique ergonomic drill machine, using anthropometric data to optimize user comfort, reduce vibration with damping materials (Poron), and differentiate it from traditional drill machines.

2. **Conceptual System Design of a Mother–Daughter Lunar Rover for South-Polar Exploration: Dust-Resilient Mobility, Uneven Terrain Navigation, and Multi-Stage Sample Collection (8th IEOM Bangladesh Conference, DOI: [10.46254/BA08.20250465](https://doi.org/10.46254/BA08.20250465))** *December 2025*
 - Designed a conceptual mother–daughter lunar rover system featuring dust-resistant wheels, hybrid solar–battery power, multi-sensor navigation, and coordinated drilling-based subsurface and daughter-rover surface sample collection for south-polar exploration.

RESEARCHES & PROJECTS

1. **Design, Development, and Innovation of an Automated Grain Drying System for Efficient and Sustainable Post-Harvest Processing** *October 2025*
 - Designed an automated hot-air drying system with controlled airflow, thermal management, and sensor-based monitoring to enhance drying uniformity, energy efficiency, and grain quality in agricultural applications.
2. **Designed an Ergonomic Table with Features: Height Adjustability, Stand Movability and Hand Rest.** *September 2025*
 - Designed an ergonomic table featuring height adjustability, adjustable laptop stand, integrated hand rest, proper illumination, and flexible stand mobility to ensure optimal workspace organization and user comfort.
3. **Thesis: Molecular Dynamics on a nanosheet of WSe₂ (TMD material)** *August 2024 – October 2025*
 - Conducting ongoing research using VESTA for supercell generation and LAMMPS for simulating nanosheet structures, guided by insights from research papers.
4. **Development of an Effective Neck Injury Protection System for High-Speed car racing** *April 2024 - October 2025*
 - Collaborated with a senior to design and 3D-print a neck injury protection system for high-speed racing, focusing on safety and functionality, and conducted experiments to evaluate its effectiveness.
5. **Designed a Lunar Rover with System Concept Review (SCR)** *December 2024*
 - Developed a lunar rover concept for IRDC, providing detailed justifications for component selection.

SKILL

Designing Software: SolidWorks, Siemens NX, Inventor	3D Data Analysis Software: PolyWorks
Simulation Software: Ansys, LAMMPS	Data Analysis Software: Python, Microsoft Excel
3D Printing Software: UltiMaker Cura, Printrun	Data Visualization Software: LabView, Ovito

ACHIEVEMENTS & CERTIFICATIONS

1. **Student Achievement Award 2026** *May 2026*
 - Received the Student Achievement Award at “IUT Excellence Award Ceremony 2026” organized by Islamic University of Technology, due to achieved several prizes in the national and international competitive events.
2. **Senior Design Competition in 8th IEOM Bangladesh Conference** *November 2025*
First Place
 - Led and executed the complete project lifecycle of the award-winning senior design project and presented the work at the 8th IEOM Bangladesh International Conference.

3. IMechE Mechanical Engineering Design Competition 2025| Theme: Grain Dryer

November 2025

Champion

- Led the development of a smart, sustainable grain-drying system integrating efficient heat distribution, uniform grain handling, and IoT monitoring.

4. Certified SOLIDWORKS Professional (CSWP)

July 27, 2025

ID no- (C-WKJRPC4GUS)

- Earned the Certified SOLIDWORKS Professional (CSWP) certification, showcasing advanced skills in 3D modeling, parametric design, and engineering drawing creation.

5. Mars Base Challenge 2025 | Space Robotics Society (SPROS)

February, 2025

4th position

- Competitively participated in an international design competition involving teams from multiple countries; shortlisted among the top 11 teams worldwide. Following a successful interview stage, secured the position where I led the base design concept for Mars 2040 and further developed advanced human habitat designs projected for Mars 2060.

6. Calibration 1.0- CAD Competition

February 2024

Champion

- Secured 1st place among 37 teams in a national competition at Khulna University of Engineering & Technology (KUET) as a core team member, showcasing advanced CAD skills and teamwork.

7. Certified SOLIDWORKS Associate (CSWA)

October 2023

ID no- (C-5VJRF424EC)

- Achieved full marks in the Certified SolidWorks Associate (CSWA) exam, demonstrating strong proficiency in CAD modeling and design principles.

LEADERSHIP EXPERIENCE

President, IUT CAD Society

2022 – October 2025

Islamic University of Technology, Bangladesh

- Enhanced the IUT CAD Society curriculum by introducing PCB design alongside SolidWorks and AutoCAD, organizing the intra-CAD competition "Traction," and mentoring 280 first-year students annually for CAD competitions and practical applications.
- Coordinated the training of 270 first-year students, providing comprehensive guidance on CAD software and its practical applications.

Team Lead, Conception Engineering

September 2024 - Present

- Founder and team lead of Conception Engineering, leading the team to compete in and innovate for international design and scientific competitions.

Secretary of Research & Development, ASME IUT Student Section

2022 – October 2025

- Contributed ideas for scholarships, E-Fest initiatives, and skill development seminars to enhance the ASME IUT Student Section.

REFERENCES

- 1) **Dr. Shamsuddin Ahmed**
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