

MD. ABRAR RAHMAN RAFAT

Dhaka, Bangladesh

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ACADEMIC CREDENTIALS

Bachelor of Science(B.Sc.) in Mechanical Engineering

[Mar 2018-May 2023]

Bangladesh University of Engineering and Technology

Cumulative GPA: **3.69/4.00**(3.78 in final term), among the top 24%

STANDARDIZED TEST SCORES

GRE general test: 330/340

[Aug 13, 2024]

Quantitative Reasoning: 167

Verbal Reasoning: 163

Analytical Writing: 3.5

TOEFL iBT: 107/120

[Sep 01, 2024]

Reading: 30/30

Listening: 26/30

Speaking: 26/30

Writing: 25/30

RESEARCH INTERESTS

Heat and Mass Transfer Thermal Analysis Energy Storage Fluid Mechanics Nano Materials Machine Learning

RESEARCH EXPERIENCE

Undergraduate Thesis:

Topic: Thermal analysis of a CSP (Concentrated Solar Power) plant co-generation cycle for the simultaneous production of electric power by using Supercritical CO₂ as working fluid and low temperature refrigeration by Ejector-Absorption refrigeration cycle

DOI: [10.13140/RG.2.2.29986.24006](https://doi.org/10.13140/RG.2.2.29986.24006)

Supervisor: Dr. Md. Zahurul Haq, Professor, Department of Mechanical Engineering, BUET

Summary: Performed Pinch Point Optimization and Thermodynamic Analysis on:

- sCO₂ Brayton cycle utilizing solar power for electric output
- Ejector absorption refrigeration system utilizing low grade waste heat

PROJECTS

1. Electromechanical System Design for Temperature Controlled Fan

Used **Proteus Design Suite** to simulate the circuit. The final model was built using **Arduino UNO**.

Project Members: **MAR Rafat**, MI Bulbul, Eshan Dey

DOI: [10.13140/RG.2.2.24146.98246](https://doi.org/10.13140/RG.2.2.24146.98246)

2. Design and Fabrication of Shell and Tube Heat Exchanger

Used **SolidWorks** to design a prototype; the final model was fabricated using low cost materials and thermal performance was evaluated

Project Members: **MAR Rafat**, NA Mini, MSH Pulok, Anusree Sen

DOI: [10.13140/RG.2.2.12556.69769](https://doi.org/10.13140/RG.2.2.12556.69769)

PROFESSIONAL EXPERIENCE

Industrial Trainee, IBN SINA Pharmaceutical Industry Ltd.

[Oct 2022-Nov 2022]

- Gained expertise in processes such as Central HVAC system, Boiler and Compressor Operation, Water Softening, Water Filtration, Effluent Treatment Process, Quality Control etc.
- Thoroughly observed and analyzed production process of Tablets, Capsules and Injectable Medicine in Cephalosporin Department, General OSD and Pharma Department and Herbal Department.

TECHNICAL SKILLS

Programming Language: Python, MATLAB, HTML, C

Post Processing: Tecplot 360

Design: AutoCAD, SolidWorks

Documentation: MS Office

HONORS & AWARDS

Dean's List Scholarship (For obtaining GPA 3.75+)

[Jan & Jul 2018]

Recipient of **University Stipend Based on Merit**

[Jan & Jul 2018]

Dhaka Education Board Merit Scholarship based on Secondary School Certificate exam

[2015]

Dhaka Education Board Merit Scholarship based on Junior School Certificate exam

[2013]

INTERPERSONAL SKILLS

Presentation

Team Management

Project Planning and Management

Teaching

OTHER NOTABLE ACTIVITIES

- **Private Tutor**

[2018-Present]

Instructed 80+ students from Standard 9 (Secondary) to Standard 12 (Higher Secondary) for their School, College, Board and University Admission Exams.

- **AI Image Generation**

Well versed in operating latent diffusion models such as Stable Diffusion, Flux etc. locally in Web Interfaces such as A111 WebUI, ComfyUI, ForgeUI etc.

REFERENCES

Dr. Md. Zahurul Haq

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