

## MD. GOLAM KIBRIA

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Department of Mechanical Engineering, RUET, Rajshahi, Bangladesh



+880-1767277554



kibria@me.ruet.ac.bd



<https://www.ruet.ac.bd/kibriaru12>



[https://scholar.google.com/citations?user=TVqv\\_eIAAAAJ&hl=en](https://scholar.google.com/citations?user=TVqv_eIAAAAJ&hl=en)

### ACADEMIC CREDENTIALS

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- B.Sc. in Mechanical Engineering, Rajshahi University of Engineering & Technology (RUET);  
December 31, 2017
  - ❖ **CGPA: 3.85 out of 4.00**
  - ❖ **Percentage of marks - 87.40**
  - ❖ **1<sup>st</sup> Class with 1<sup>st</sup> Position out of 136 Students.**
- M.Sc. in Mechanical Engineering, Rajshahi University of Engineering & Technology (RUET);  
December 09, 2023
  - ❖ **CGPA: 3.83 out of 4.00 (With Honors)**

### AWARDS & HONORS

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#### **Prime Minister Gold Medal 2017**

In recognition for securing the highest Marks/ CGPA in the Bachelor of Science in Mechanical Engineering examination from the faculty of Mechanical Engineering, RUET

#### **University Gold Medal**

In recognition for outstanding academic performance in the Bachelor of Science in Mechanical Engineering examination 2016, RUET

#### **University Merit Scholarships & Student of the Year awards**

During all academic years of undergraduate studies in Mechanical Engineering, RUET

#### **Bangladesh Government Scholarship**

In Higher Secondary Certificate Examination-2012; Secondary School Certificate Examination-2010, and Junior Scholarship Examination-2008

### TEACHING EXPERIENCE

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<b>Assistant Professor</b>	Department of Mechanical Engineering, Rajshahi University of Engineering & Technology (RUET), Bangladesh	<b>Teaching and research in undergraduate study</b>	<i>July 2022 to Till now</i>
<b>Lecturer</b>	Department of Mechanical Engineering, Rajshahi University of Engineering & Technology (RUET), Bangladesh	<b>Teaching and research in undergraduate study</b>	February 2019 to June 2022

## RESEARCH INTERESTS

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Energy Systems: Solar energy, hydrogen production, biomass conversion, and energy storage.

Environmental Technologies: Carbon capture, distillation, and hybrid nanomaterials.

Thermal Management: PCM heat transfer, thermal regulation for batteries and PV panels.

Electrochemistry: Advanced techniques for analyzing electrochemical systems.

HVAC and Indoor Quality: Enhancing energy efficiency and environmental quality.

Additive Manufacturing: Advancing 3D design and printing technologies.

## RESEARCH EXPERIENCE

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- **07/07/2022-09/07/2023:** Worked on project as CO PI: Performance evaluation of a PVT system using Phase Change Material for thermal energy storage, Masters Project; Funded by: University Grant Commission, Bangladesh, (valued ~ 3,000 USD); PI: Prof. Dr. Mohammed Rafiqul Alam Beg, Rajshahi University of Engineering and Technology (RUET), Rajshahi, Bangladesh.
- **2022-2023:** Participated as PI: Lithium-ion Battery thermal management Using Fin enhanced Hybrid Nano Phase Change Materials and Hybrid Nanofluid, Funded by: RUET, Bangladesh (valued ~ 2,000 USD).
- **2022-2023:** Participated as PI: Performance evaluation of a PVT/Fin system incorporating hybrid nanomaterials (*Al<sub>2</sub>O<sub>3</sub>*, *ZnO* and Graphite) with PCM (Paraffin Wax), Funded by: RUET, Bangladesh (valued ~ 3,000 USD).
- **2021-2022:** Participated as PI: Experimental investigation on the productivity of fresh water using hybrid nano-enhanced PCM, fins and sand in pyramid solar still. Funded by: RUET, Bangladesh (valued ~ 2,000 USD).
- **2020-2021:** Participated as PI: Thermal conductivity enhancement of phase change material (paraffin wax) using Hybrid- Nano (*Al<sub>2</sub>O<sub>3</sub>* and *ZnO*) Material. Funded by: RUET, Bangladesh (valued ~ 2,000 USD).
- **2020-2021:** Worked on project as CO PI: Performance evaluation of evaporative cooler using locally available cooling pad materials, Funded by: University Grant Commission, Bangladesh (valued ~ 2,000 USD); PI: Prof. Dr. Barun Kumar Das, Rajshahi University of Engineering and Technology (RUET), Rajshahi, Bangladesh

## PUBLICATIONS

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- **Number of published journal papers: 12 (Q1 journal: 09)**
- **Number of first-authored journal papers: 05, Number of international conference papers: 09 and 01 book chapters**
- **Number of manuscripts in press: 10 journal papers**

## PEER-REVIEWED JOURNALS

- [1] **Md. Golam Kibria**, Md. Shahriar Mohtasim, Utpol K. Paul, Barun K. Das, R. Saidur et al. Impact of hybrid nano PCM (paraffin wax with Al<sub>2</sub>O<sub>3</sub> and ZnO nanoparticles) on photovoltaic thermal system: Energy, exergy, exergoeconomic and enviroeconomic analysis. *Journal of Cleaner Production* 436 (2024) 140577. <https://doi.org/10.1016/j.jclepro.2024.140577>
- [2] **Md. Golam Kibria**, Md. Shahriar Mohtasim, Utpol K. Paul, Istiak Ahmed Fahim, Nafi, Md. Sanowar Hossain, Barun K. Das, Hussein A. Mohammed. A Review on Composite Phase Change Materials and Fins-Based LiIon Battery Thermal Management Systems with Design Perspectives and Future Outlooks. *ACS Energy & Fuels* 2024 Vol. 38 Issue 15 Pages 13637-13660. <https://doi.org/10.1021/acs.energyfuels.4c02062>
- [3] **Md. Golam Kibria**, Utpol K. Paul, Md. Shahriar Mohtasim, Barun K. Das, N.N. Mustafi . Characterization, Optimization, and performance evaluation of paraffin wax PCM with Al<sub>2</sub>O<sub>3</sub> and ZnO hybrid nanoparticles for solar PVT thermal energy storage. *Energy and Built Environment Journal* <https://doi.org/10.1016/j.enbenv.2024.06.001>
- [4] Utpol K. Paul, Md. Shahriar Mohtasim , **Md. Golam Kibria**, Barun K. Das. Nano-material based composite phase change materials and nanofluid for solar thermal energy storage applications: Featuring numerical and experimental approaches. *Journal of Energy Storage* 98 (2024) 113032. <https://doi.org/10.1016/j.est.2024.113032>
- [5] Usma Atiua Anika, **Md. Golam Kibria**, Shithi Dey Kanka, Md. Shahriar Mohtasim, Utpol K. Paul, Barun K. Das. Exergy, exergo-economic, environmental and sustainability analysis of pyramid solar still integrated hybrid nano-PCM, black sand, and sponge. *Solar Energy* 274 (2024) 112559. <https://doi.org/10.1016/j.solener.2024.112559>
- [6] Shithi Dey Kanka, **Md. Golam Kibria**, Usma Atiua Anika, Barun K. Das, Md. Sanowar Hossain, Dibyendu Roy, Md. Shahriar Mohtasim et al. Impact of various environmental parameters and production enhancement techniques on direct solar still: A review. *Solar Energy* 267 (2024) 112216. <https://doi.org/10.1016/j.solener.2023.112216>
- [7] **Md. Golam Kibria**, Utpol K. Paul, Ashik Hasan, Md. Shahriar Mohtasim, Barun K. Das, Monjur Mourshed et al. Current prospects and challenges for biomass energy conversion in Bangladesh: Attaining sustainable development goals. *Biomass and Bioenergy* 183 (2024) 107139. <https://doi.org/10.1016/j.biombioe.2024.107139>
- [8] Mim Mashrur Ahmed, Barun K. Das, Pronob Das, Md Sanowar Hossain, **Md Golam Kibria** et al. Energy management and sizing of a stand-alone hybrid renewable energy system for community electricity, fresh water, and cooking gas demands of a remote island. *Energy Conversion and Management* 299 (2024) 117865. <https://doi.org/10.1016/j.enconman.2023.117865>
- [9] Pabitra Prosad Mondal, Md. Atikur Rahman, Md. Shahriar Mohtasim , **Md. Golam Kibria**, Ashik Hasan, Md. Sanowar Hossain, Pronob Das, Md. Forhad Ibne Al Imran, Mohd. Rafiqul A. Beg. Performance test of a heliostat field integrated PVT solar collector using organic phase change material and carbon black additives. *Energy Reports* 12 (2024) 1566–1579. <https://doi.org/10.1016/j.egyr.2024.07.031>
- [10] Md. Sanowar Hossain, Nahid Imtiaz Masuk, Barun K. Das, Arnob Das, **Md. Golam Kibria**, Miftahul Mobin Chowdhury, Imtiaz Ahmed Shozib, et al. Theoretical estimation of energy potential and environmental emissions mitigation for major livestock manure in Bangladesh. *Renewable Energy* 217 (2023) 119354. <https://doi.org/10.1016/j.renene.2023.119354>
- [11] Md Sanowar Hossain, Miftahul Mobin Chowdhury, Barun K Das, Mohammad Rofiqul Islam, **Md Golam Kibria**, Sujan Banik, et al. A sustainable energy approach for pumping and irrigation in the

Barind Region of Bangladesh. *Clean Technologies and Environmental Policy* (2024). DOI: <https://doi.org/10.1007/s10098-023-02711-z>

- [12] **Kibria, M.G.**, Masuk, N.I., Safayet, R. et al. Plastic Waste: Challenges and Opportunities to Mitigate Pollution and Effective Management. *Int J Environ Res* 17, 20 (2023). <https://doi.org/10.1007/s41742-023-00507-z>

#### **PEER REVIEWED CONFERENCE PAPERS**

- [1] Md Kamrul Hasan, **Md. Golam Kibria**, Md Hasibuzzaman. Investigation the Effects of Discharge Current on the Capacity and Active Mass Utilization Coefficient of Easy Bike Battery. *14th International Conference on Mechanical Engineering (ICME 2023)*. December 18-19, 2023. Dhaka, Bangladesh.
- [2] Md Kamrul Hasan, **Md. Golam Kibria**. Effect of Discharge current on the capacity of lead acid battery. *7<sup>th</sup> International Conference on Engineering Research, Innovation and Education (ICERIE 2023)* School of Applied sciences & Technology, SUST, Sylhet, Bangladesh.
- [3] Shah Tanvir Alam Rimon, **Md. Golam Kibria**, Mehedi Hasan. A review on green cooling pad material for evaporative cooling towards a sustainable approach. *Proceedings of the 7<sup>th</sup> International Conference on Mechanical Engineering and Renewable Energy 2023 (ICMERE2023)* 16-18 November 2023, Chattogram, Bangladesh.
- [4] **Md. Golam Kibria**, Sakin Mahamud , N. M. Morshedul Hoque , Asma-UL-Husna, Md Rabiul Islam Sarker , Mohd. Rafiqul Alam Beg, "Experimental Investigation of a PVT System Using PCM" *International Conference on Mechanical, Industrial and Energy Engineering 2022 22-24 December, 2022, Khulna, Bangladesh, 2022*.
- [5] **M. G. Kibria**, F. Rashid and M. Shahadat, "Design, Fabrication and Performance Analysis of a Voice Coil Motor Using Different Input Signal," in *IEEE International Conference on Signal Processing, Information, Communication & Systems (SPICSCON) 28-30 November, 2019*, Dhaka, Bangladesh, 2019.
- [6] **M. G. Kibria**, B. K. Das, R. A. Beg and A. Chakravartty, "Assessment of Biogas Generation from Cattle Dung in Bangladesh," in *International Conference on Mechanical Engineering and Renewable Energy (ICMERE 2019) 11-13 December, 2019*, Chittagong, Bangladesh, 2019.
- [7] **M. G. Kibria**, M. A. Arefin, P. Kumar and M. S. Hossain, "Leaf Spring for Light Vehicle : Comparison among Conventional Steel, Composite Materials (Epoxy-E Carbon & Epoxy -E Glass) by Ansys Workbench," in *International Conference on Mechanical, Industrial and Materials Engineering (ICMIME 2019) 17-19 December, 2019*, Rajshahi, Bangladesh, 2019.
- [8] M. S. Hossain, **M. G. Kibria**, A. M. Parvej and M. R. Islam, "Production and Characterization of Pyrolytic Oil Derived from Co- Pyrolysis of Solid Polythene Waste and Saw Dust," in *International Conference on Mechanical Engineering and Renewable Energy (ICMERE 2019) 11-13 December, 2019*, Chittagong, Bangladesh, 2019.
- [9] M. A. Al Hasan, M. H. Kabir, **M. G. Kibria** and M. U H Joardder (omar), "Numerical & Experimental Evaluation of the Performance of CELdek as a Cooling Pad Material," in *International Conference on Mechanical Engineering and Renewable Energy (ICMERE 2021)*, Chattogram, Bangladesh, 2021.

#### **BOOK CHAPTER**

- [1] Shah Tanvir Alam Rimon, **Md. Golam Kibria**, Monjur Mourshed. Blue Bioeconomy: Value-

added Products from Marine Algae and Micoorganisms. *In Royal Society of Chemistry, United Kingdom* 2024. <https://doi.org/10.1039/9781837675654-00025>

## TECHNICAL SKILLS

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- **Fabrication Techniques:** Hands-on experience on sol-gel processing of  $Al_2O_3$  nano particle, synthesis of hybrid nano phase change material.
- **Characterization and Testing:** Experienced in operating & analyzing data from FESEM, DSC, FTIR, UTM, Hardness and Impact test.
- **Software:** COMSOL Multiphysics, Ansys Fluent, Solid Works, ANOVA
- **programming skills:** Python

## EXTRACURRICULAR ACTIVITIES

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- Academic advisor for 19 students in the Department of Mechanical Engineering at RUET.
- Departmental focal point of Dept. of Mechanical Engineering, RUET.
- Participant in the training workshop on “Foundation Training on Teaching – Learning (Outcome Based Education)”.
- Member: Advertisement & Publications Committee, International conference on Mechanical, Industrial and Materials Engineering (ICMIME 2024), Bangladesh.
- Joint secretary, Rajshahi District Association (RDA), RUET.
- Member, BADHON (A blood donating organization).