Program at a glance

Date and Time 11 December 2024 Wednesday	Program		
9:00 AM-10 AM	**Registration and Kit Collection** Venue: RUET Auditorium		
10:00 AM-10.30 AM	**Inaugural Session** Venue: RUET Auditorium		
10:30 AM-10.50 AM	**Refreshment**		
10.50 AM-12.50 PM	**Keynote Session-I** Venue: RUET Auditorium		
	10.50 AM-11.20 AM	Professor Muhammad Aziz	
	11.20 AM-11.50 AM	Professor Md. Mahbub Alam	
	11.50 AM-12.20 PM	Professor Dr. Mohammad Yeakub Ali (Online)	
	12.20 PM-12.50 PM	Professor Xingjian Jing (Online)	
12.50 PM-2:00 PM	**Lunch and Prayer Break**		
2:00 PM-4.00 PM	**Technical Session-I** (Energy Engineering-I) Room: HE201	**Technical Session-II** (Thermal Engineering-I) Room: HE202	**Technical Session-III** (Fluid Mechanics-I) Room: HE203
	Technical Session-IV (Materials Science and Engineering-I) Room: HE204	**Technical Session-V** (Industrial and Production Engineering-I) Room: Seminar Room	
4.00 PM-4.20 PM	**Tea and Prayer Break**		
4.20 PM-5.00 PM	**Keynote Session-II** Venue: Seminar Room Professor Manosh Paul (Online)		
5.00 PM-5.30 PM	**Prayer Break**		
5.30 PM-7.30 PM	**Technical Session-VI** (Energy Engineering-II) Room: HE201	**Technical Session VII** (Applied Mechanics & Mechatronics-I) Room: HE202	**Technical Session-VIII** (Related Technology-I) Room: HE203
	Technical Session-IX (Materials Science and Engineering -II) Room: HE204	**Technical Session-X** (Industrial and Production Engineering-II) Room: Seminar Room	
8:00 PM	**Conference Grand Dinner**		

All technical sessions will be held on the 1st floor of Heat Engine Lab Department of Mechanical Engineering.

Date and Time 12 December 2024 Thursday	Program		
8:00 AM – 8:30 AM	**Registration and Kit Collection** Venue: HE201		
8:30 AM – 10:30 AM	**Technical Session-XI** (Energy Engineering-III) Room: HE202	**Technical Session-XII** (Applied Mechanics & Mechatronics -II) Room: HE203	**Technical Session XIII** (Fluid Mechanics-II) Room: HE204
	Technical Session XIV (Online I) Room: Seminar Room		
10:30 AM – 10:50 AM	**Refreshment**		
10:50 AM – 12:50 PM	**Technical Session XV** (Materials Science and Engineering-III) Room HE201	**Technical Session-XVI** (Industrial and Production Engineering -III) Room HE202	**Technical Session XVII** (Thermal Engineering-II) Room HE203
	Technical Session XVIII (Online II) Room HE 204	**Technical Session XIX** (Online III) Room Seminar Room	
12:50 PM – 2:20 PM	**Lunch and Prayer Break**		
2:20 PM – 4:00 PM	**Keynote Session-III** Venue: Seminar room		
	2:20 PM-2:50 PM	Professor Firoz Alam	
	2:50 PM-3:20 PM	Professor Yingai Jin	
	3:20 PM-3:50 PM	Professor Ashraful Islam	
3:50 PM-4:15 PM	**Tea and Prayer Break**		
4:15 PM-5:15 PM	**Closing Ceremony**		
5:15 PM	**Dinner**		

Date and Time 13 December 2024 Friday	Program
9.00 AM	**Conference Tour** (Journey will start from the admin building)

All technical sessions will be held on the 1st floor of Heat Engine Lab Department of Mechanical Engineering.

PROGRAM SCHEUDULE

Keynote Lectures

Keynote Lectures	Keynote Session-I 11 December 2024 Wednesday (10.50 AM-12.50 PM) Venue: RUET Auditorium Chair: Prof. Dr. Sirajul Karim Choudhury (BUFT, Bangladesh) Co-Chair: Prof. Dr. Mohammad Rofiqul Islam (RUET, Bangladesh)	Page no.
KL 01	Progress on Clean Hydrogen Production Based on Chemical Looping and Its Efficient Storage Employing Triply Periodic Minimal Surface Structure *Professor Muhammad Aziz (University of Tokyo, Japan)*	
KL 02	A review of blockage and wall effects on flow-induced vibrations of various bluff bodies *Professor Md. Mahbub Alam (Harbin Institute of Technology, Shenzhen, China)*	
KL 03	Project Management: The Integral Part of Mechanical Engineering Curriculum *Professor Dr. Mohammad Yeakub Ali (Universiti Teknologi, Brunei)*	
KL 04	Beneficial Nonlinear Design in Engineering: The X Structure/ Mechanism Approach *Professor Xingjian Jing (City University of Hong Kong, Hong Kong)*	

Keynote Lectures	Keynote Session-II 11 December 2024 Wednesday (4.20 PM-5.00 PM) Venue: Seminar Room Chair: Prof. Dr. Mohd. Rafiqul Alam Beg (RUET, Bangladesh) Co-Chair: Prof. Dr. Nirendra Nath Mustafi (RUET,Bangladesh)	Page no.
KL 05	Roles of Bio-Hydrogen in Net-Zero Energy and Sustainability *Professor Manosh Paul (University of Glasgow, UK)*	

Keynote Lectures	Keynote Session-III 12 December 2024 Wednesday (2:20 PM – 4:00 PM) Venue: Seminar room Chair: Prof. Dr. Mohammad Nurul Islam (BAUET, Bangladesh) Co-Chair: Prof. Dr. Md. Nurul Islam (RUET, Bangladesh)	Page no.
KL 06	A Prospective New Energy Hydrogen: Challenges and Opportunities *Professor Firoz Alam (RMIT University, Australia)*	
KL 07	The Application of Energy Storage Technologies in Integrated Energy Systems: Current Status, Challenges, and Future Prospects *Professor Yingai Jin (Jilin University, China)*	
KL 08	Coadditive and device engineering for high performance perovskite solar cells *Ashraful Islam (National Institute for Materials Science (NIMS), Japan)*	

Technical Sessions

Technical Session – I Energy Engineering – I 11 December Wednesday 2:00 PM – 4:00 PM Venue: Heat Engine Lab, Room No.: 201 Session Chair: Prof. Dr. Muhammad Aziz (University of Tokyo, Japan) Session Co-Chair: Dr. Monjur Mourshed (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
010	Life cycle assessment of waste incineration technology: A case study on Dhaka city, Bangladesh	
032	Sustainable micro-grid system analysis and design by using renewable energy sources for remote islands in the western Bay of Bengal optimized by HOMER software	
045	Biodiesel Production from Rubber Seed Oil (RSO) Using Calcined Eggshells as Nano Heterogeneous Catalyst	
077	A Study on Enhanced Thermal Performance in Two-Phase Microchannels for Electronic Cooling Applications	
099	Mitigating Global Warming by Waste Heat Recovery from a Brick Kiln to Enhance Thermoelectric Generation	
143	Performance Analysis of Power Generation in Dual Chamber Microbial Fuel Cell Using Municipal Wastewater	
154	Comparative Analysis among Different Waste to Energy Technologies to Mitigate Extra Load due to Transition towards Electric Vehicle in Bangladesh	
175	A Numerical Approach for Evaluating the Aerodynamic Effectiveness of Vertical Axis Wind Turbine by Different Types of Airfoils	
247	Solar Tracker Panels with Dual Axes Using Auto and Manual Modes	

Technical Session – II Thermal Engineering -I 11 December Wednesday 2:00 PM – 4:00 PM Venue: Heat Engine Lab, Room No.: 202 Session Chair: Prof. Dr. Md Rabiul Islam Sarker (RUET, Bangladesh) Session Co-Chair: Prof. Dr. Dipayan Mondal (KUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
038	Numerical Analysis of Airflow and Temperature Distribution of an Air-Conditioned Room	
058	Numerical Analysis of Natural Convection inside a Prismatic Enclosure with a Rectangular Heat Source	
210	Simulation-Based Optimization of Air Conditioning Systems for Enhanced Energy Efficiency and Indoor Air Quality at Rajshahi University of Engineering and Technology	
354	Effect of Spring Turbulators on Heat Transfer Performance in Double Pipe Heat Exchangers: A Parametric Analysis	
359	A Numerical Study of Multiphase Flow Boiling Heat Transfer of Nanofluids in Various Porous Media of Vertical Tubes	
362	Enhanced Heat Transfer in Double Pipe Heat Exchanger Using Helical Fins: Simulation and Optimization	
370	A Study on The Effect of Heat Transfer Within a Helical Shape Microchannel Heat Sink of Squared Cross-section	
374	Performance Analysis of a Hybrid Solar Dryer Incorporating Adaptive Glass Tilting	
385	An Experimental Analysis of Solar Geysers with Direct Flow Evacuated Tube Collectors	
482	A review on effects of nano lubricants with sustainable refrigerants blend on the performance of domestic air conditioners	

Technical Session - III Fluid Mechanics – I 11 December Wednesday 2:00 PM – 4:00 PM Venue: Heat Engine Lab, Room No.: 203 Session Chair: Prof. Md. Mahbub Alam (HIT, China) Session Co-Chair: Dr. Mahadi Hasan Masud (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
008	Natural Convection & Mixed Convection Heat Transfer Flow of Nanofluid (Ag/TiO2 – water) in Multi-Shaped Enclosure with Heated Central Circle	
015	Airfoil Passive Noise Reduction: A Comprehensive Analysis of Recent Advancements	
039	Numerical Investigation of Effect of Chevron Angle on Thermofluids Characteristics of Plate Heat Exchanger	
135	A Computational Study and Analysis of the Blood Flow through Semielliptical Shaped Stenosed Artery	
161	Efficiency and Stability Enhancement of Perovskite Solar Cells Through Strategic Doping: An Overview	
167	Study the Aerodynamic Behaviors of a Go-Kart by using CFD Analysis	
204	Noise emission reduction of a jet engine by double cylindrical perforated liners in a combustion chamber	
260	A State-of-the-Art Review on the Drag Reduction Techniques of Underwater Vehicles for Reduced Fuel Consumption and Enhanced Maneuverability	
367	Numerical simulation for hydrodynamic behavior of the floating platform of a wind turbine	
391	Analysis of Plate-Fin-Tube Heat Exchanger	

Technical Session - IV Materials Science & Engineering – I 11 December Wednesday 2:00 PM – 4:00 PM Venue: Heat Engine Lab, Room No.: 204 Session Chair: Prof. Dr. Md. Shamimur Rahman (RUET, Bangladesh) Session Co-Chair: Dr. Md. Aminul Islam (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
009	A Green in Situ Synthesis of Zinc Oxide Nanoparticles on a Cotton Fabric Using Orange Peel Extract to Create a Functional Textile with Enhanced Physical Properties	
043	Design and Fabrication of a Cost-Effective Rotating Beam Fatigue Testing Machine for Aluminum, Mild Steel, Cast Iron, and Stainless Steel.	
055	The Potential of Waste Eggshells in the Ceramic Industry: Enhancing Morphological, Structural, and Mechanical Properties of Whiteware Body Prepared Through the Solid-State Sintering Process	
057	Characterization and Manufacturing Process of Recycled Plaster of Paris from Waste Industrial Mold and Comparison of the Physical and Mechanical Properties Compared to Pure Plaster of Paris at Elevated Temperatures.	
084	Replacement of CaO by Recycled Bone Ash in Whitewares	
087	Assessment of physical and mechanical properties of ceramic tiles incorporating Coconut Coir Ash (CCA)	
090	Influence of Moisture Diffusion on the Mechanical Properties of JUCO/Carbon Epoxy Composites: An Experimental and FEM Evaluation	
093	Synthesis and investigation of frequency-dependent dielectric behavior in potassium, strontium, and niobium-doped and co-doped barium titanate ceramics	
110	Upcycling Ceramic Waste for Sustainable Tile Production	
113	Mechanical Properties of Gerbera Stem Inspired Dodecagonal Structures	
115	Numerical Analysis and Fabrication of Cupric Oxide Based Solar Cell	
121	Bio Composite Made of Maize Starch Reinforced by Banana Stem Fiber: An Approach Towards Sustainable Composite Material for Packaging Purposes	

Technical Session - V Industrial Production & Engineering - I 11 December Wednesday 2:00 PM – 4:00 PM Venue: Heat Engine Lab, Seminar Room Session Chair: Prof. Dr. Md. Mosharraf Hossain (RUET, Bangladesh) Session Co-Chair: Dr. Sanowar Hossain (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
001	Measuring the Productivity of workers and Its Impact on Business performance: A Case Study of seven selected RMG Industries	
004	Eco-Friendly Retailing: A Case Study of Green Supply Chain Management by Superstores in Dhaka, Bangladesh	
017	Ecological and Health Risk Assessment of Lead Contamination in Soil, Water and Plant grown nearby Lead battery Industry in Southern area of Bangladesh	
019	Transforming textile waste into sustainable yarn	
089	Criticality Analysis of Steel Industry Using Fuzzy Model	
106	Development of a Fuzzy Risk Model for Criticality Analysis of a 25 MW Dual-Fuel Power Plant in Bangladesh	
140	Optimizing Welders' Posture: A Study on Ergonomic Solutions to Mitigate MSDs	
141	Smart Recyclable/Non- Recyclable Product Sorting Garbage Bin	
148	Revitalizing Warehouse Management: A Study of DBL Ceramics LTD's AS/RS Implementation for Capacity and Performance	
171	A Smart Technology Based Digital Stove with Gas Leak Detection and Automatic Shut Off	
197	Improving the Layout Design of RUET Cafeteria for Increasing its Customer Satisfaction and Time Spend Analysis	
205	Demand forecasting for grocery products with shorter shelf life in a super shop using machine learning	

Technical Session – VI Energy Engineering – II 11 December Wednesday 5:30 PM – 7:30 PM Venue: Heat Engine Lab, Room No.: 201 Session Chair: Prof. Dr. Nirendra Nath Mustafi (RUET, Bangladesh) Session Co-Chair: Dr. Md Shazib Uddin (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
318	Fabrication and Analysis of a Solar Assisted Plastic Pyrolysis Reactor	
320	Optimization of hybrid renewable energy system to reliably meet the electricity demand of a small off-grid island in Bangladesh	
340	Numerical and experimental investigation of a wave energy converter prototype to generate electricity	
389	Harnessing Solar Energy: An Experimental Study on Development and Performance Evaluation of a Thermosyphon-Based Evacuated Tube Solar Water Heater	
403	Numerical Investigation on the Thermal Performance of a Building Integrated with Phase Change Material in the Roof	
446	Production Forecasting of Bakhrabad Gas Field Using Decline Curve Analysis	
449	Statistical Analysis of The Potential of Renewable Energy in Running Vehicles for Rajshahi City	
463	Microbial fuel cell (MFC) technology for energy harvesting and wastewater treatment: recent progress and challenges	
467	From Waste to Energy: Evaluating the Potential of Incineration and Anaerobic Digestion for Energy Generation in Underdeveloped Countries	
471	Integrating Supercapacitors and Redox-Flow Batteries for Enhanced Energy Storage in Off-Grid Solar/Wind Hybrid Systems	
476	Electricity Generation from Speed Breakers: Numerical Analysis of Existing Mechanisms for Bangladesh's Road Condition	

Technical Session - VII Applied Mechanics & Mechatronics - I 11 December Wednesday 5:30 PM – 7:30 PM Venue: Heat Engine Lab, Room No.: 202 Session Chair: Prof. Dr. Shahajada Mahmudul Hasan (RUET, Bangladesh) Session Co-Chair: Tasnuva Tabashhum Choudhury (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
030	Automatic Sorting System in a Production Line using Machine Learning	
053	Design and Optimization of transformer robot for transformation of wheel to leg track wheel	
094	Smart Waste Management System for Drainage Networks: Detection, Removal, and Notification.	
100	Real-Time Monitoring and Control of a Smart Home using Internet of Things (IoT) Technology	
151	Automated Waste Sorting using Deep Learning and Robotic Manipulation: A Comprehensive Approach	
255	Design & Fabrication Of A Robotic Vacuum Cleaner	
256	Design And Analysis Of A Voice Coil Driven Microgripper For Precision Handling	
284	Failure Probability Analysis Of A Pwr Pressure Vessel Nozzle By Using Probabilistic Fracture Mechanics Code	

Technical Session - VIII Related Technology -I 11 December Wednesday 5:30 PM – 7:30 PM Venue: Heat Engine Lab, Room No.: 203 Session Chair: Prof. Dr. Md. Rokunuzzaman (RUET, Bangladesh) Session Co-Chair: Dr. Mohammad Nurur Rahman (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
031	Unveiling the Capabilities of an Economical Hexa-copter: A Comprehensive Characterization	
040	Construction & Comparison of Contactless and Contact Magnetic Braking System	
125	Real Time Facial Expression Analysis Using VGGNet Architecture	
168	Enhancing Wastewater Treatment with ZnO-Based Organic Polymerized Coagulants: A modern approach to an effective solution for wastewater treatment.	
263	A Case Study on Obstacles and Prospects in the Functionality of the First Integrated Landfill and Resource Recovery Facility of Bangladesh in Jashore Municipality	
309	Classification of Motor Imagery EEG Signal by Convolutional Neural Network Utilizing Wavelet Transformed Based Mode Decomposition	
332	Process Optimization and Sustainability Assessment of Conventional Natural Gas and Bio Gas Production Process	
338	Mechanical and Thermal Properties Investigation of Jute Reinforced Epoxy Composites with Rice Husk Ash	
426	Environmental Degradation through Brick Kilns: An Investigation into Soil Pollution in Bangladesh	

Technical Session - IX Materials Science & Engineering – II 11 December Wednesday 5:30 PM – 7:30 PM Venue: Heat Engine Lab, Room No.: 204 Session Chair: Prof. Dr. Md. Sanaul Rabbi (CUET, Bangladesh) Session Co-Chair: Dr. Md. Abdullah Al Mahmood (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
164	Atomistic Investigation of Mechanical Properties of Metals Reinforced with Central and Auxiliary Voids	
206	A Comprehensive Review on the Enhancement of Photocatalytic Activities of ZrO2 Nanoparticle for Hydrogen Production and Dye Degradation by Introducing Doping, Co-doping and Composite Forming.	
215	A Comprehensive Review on The Effect of Doping and Co-doping onto Optical and Electrical Properties of ZnO Thin Film as P Type TCO in Various Optoelectronic Applications	
236	Mechanical Behavior Prediction of Carbon Fiber Reinforced Polymer Through ANSYS 21 Modeling	
258	Integration of Smart Materials: Enhancing Concrete Durability through Bacterial Solutions	
264	A Numerical Study of Thermal Conductivity in Polypropylene Composites: Exploring the Synergy of Solid Glass Beads and Ceramic beads as Fillers	
268	Study of morphological and antimicrobial analysis of green synthesized Cu-doped Co-Zn oxide nanoparticles using Mikania micrantha (leaf) extract	
282	Removal of Zn2+ From Aqueous solution Using Chicken Eggshell As Bioflocculant	
292	Comparative Study of ZnO Nanoparticles: Experimental Evaluation and Density Functional Theory Predictions of Electronic and Optical Properties	

Technical Session - X Industrial Production & Engineering - II 11 December Wednesday 5:30 PM – 7:30 PM Venue: Heat Engine Lab, Seminar Room Session Chair: Prof. Dr. Md. Shamim Akhter (RUET, Bangladesh) Session Co-Chair: Dr. Md. Mohibul Islam (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
209	Combating the Scorch: A Bangladesh-Specific Approach to Heat Wave Mitigation using a Novel Best-Worst Decision Framework for Effective Solutions	
246	Performance Analysis and Cost Effectiveness of Modified Vacuum Systems for Industrial Applications	
265	Temperature and Aging Effects on Lead-Acid Battery Performance: Insights from Constant Current Charging Simulations	
287	Safety in the Workplace and Its Impact on Labor Productivity: An Explanatory Study in the Furniture Industry	
293	Mass Reduction and Performance Testing of an Engine Bracket by Utilizing Topology Optimization and Generative Design Method	
294	Framework for Leveraging Artificial Intelligence to Enhance Entrepreneurship in Mechanical and Industrial Engineering	
312	A novel framework of vegetable supply chain digitalization to improve the business performance	
321	Development of an Innovative Wheelchair-Bed for Enhanced Patient Care in Bangladesh: Integrating Comfort and Accessibility Features	
360	Advancing Retail Experience with Smart Shopping Carts: A Design Process Perspective for Bangladesh	

Technical Session – XI Energy Engineering – III 12 December Thursday 8:30 AM – 10:30 AM Venue: Heat Engine Lab, Room No.: 202 Session Chair: Prof. Dr. Md. Anowar Hossain (DUET, Bangladesh) Session Co-Chair: Md. Ariful Islam (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
478	Solar Energy in Bangladesh: A Comprehensive Review of Current Status & Opportunities	
491	Peltier module-based solar refrigeration system	
504	Techno-Economic Feasibility Analysis of Integrated Heat Pump and Solar System for Commercial Building	
510	A Study on Reduction of CO2 in Underground Mine	
518	Analyzing satellite imagery to extract land cover information using remote sensing techniques	
519	Understanding Green Changes: Satellite NDVI Analysis of Vegetation in NARSINGDI	
524	Techno-Economic Assessment of Different Waste-to-Energy Strategies for Charging Battery-Driven Auto Rickshaws: A Case Study in Bangladesh	
526	Integrating Renewables Into Stand-alone Hybrid Energy System and Meeting Freshwater Demand by Utilizing Excess Energy	
527	Present Status and Future Projection of Renewable Energy Resources and Their Impacts on GHG Emission Reduction in Bangladesh	
533	Efficiency Improvement of PV Panel using Series-Parallel Combination of Thermoelectric Generator	

Technical Session - XII Applied Mechanics & Mechatronics - II 12 December Thursday 10:50 AM – 12:50 PM Venue: Heat Engine Lab, Room No.: 203 Session Chair: Prof. Dr. Md. Emdadul Hoque (RUET, Bangladesh) Session Co-Chair: Dr. Sajal Kumar Das (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
329	Blazeguard: A Precision-Driven Hexacopter Drone for Urban Firefighting	
351	Autonomous Navigation and Localization with AMCL using Turtlebot4 and ROS2	
357	Transit Guardian: Designing a Proactive Emergency safety system for women in public transport	
358	DigiClone 3D: A Distance Sensor based approach to design a 3D Scanner to Scan Real-life Objects & Implement in Digital Reality	
384	Design and Development of a Multifunctional Agricultural Robot Prototype for Precision Farming	
398	A Protective Solution for Safe Testing of UAV Control Algorithms Using Fullerene Structures	
416	Diagnosis And Prediction of Bearing Fault By Deep Learning Approach With Vibration Analysis	
487	DeepLeafGuard: A CNN-Enabled Monitoring System for Accurate Plant Leaves Disease Detection	
512	BENGALI LICENSE Plate Detection and Text Recognition using Deep Learning	
513	An Analysis of Machine Maintenance Prediction Using Machine Learning	

Technical Session - XIII Fluid Mechanics – II 12 December Thursday 8:30 AM – 10:30 AM Venue: Heat Engine Lab, Room No.: 204 Session Chair: Prof. Dr. Mohammad Rofiqul Islam (RUET, Bangladesh) Session Co-Chair: Dr. Md. Abdur Rahim (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
401	Computational Modeling of Urine Flow in Pelvi-Ureteric Junction (PUJ) Obstruction Integrating Discrete Phase Model: A Non-invasive Approach for Diagnostic and Urodynamic Study	
438	Aerodynamic Performance analysis of a biomimetic based fixed wing for Micro Aerial Vehicle Applications	
455	A systematic comparison among different passive flow control strategies to enhance the aerodynamic performance of wind turbines	
465	An Overview of The Recent Progress and Challenges in Nano Aerial Vehicles (NAVs)	
466	Feasibility study of various innovative wastewater treatment strategies in the context of Bangladesh	
470	Fabrication and Enhancement of Ionic Wind Speed in EHD Propulsion Systems with Airfoil-Type Electrodes	
493	Blending Airfoils to Improve the Aerodynamic Performance of a Vertical Axis Wind Turbine	
503	Numerical Analysis of the Aerodynamic Impact of Front Splitters on Lift and Drag Forces in BMW 5 Series E60	
520	A state-of-the-art review of the gravitational water vortex turbine for off-grid application and comparison with the existing water turbines	
531	Evaluation of Mixing Performance in Different Kinetic Static Micromixer; A Numerical Approach	
536	Flow-Induced Vibration of an Inelastic Cylinder in Wake	

Technical Session - XIV
Online I
12 December Thursday 8:30 AM – 10:30 AM
Venue: Heat Engine Lab, Room No.: Seminar Room
Session Chair: Dr. Mhia Md. Zaglul Shahadat (RUET, Bangladesh)
Session Co-Chair: Dr. Md. Abdul Kader (RUET, Bangladesh)

Zoom Link: https://bdren.zoom.us/j/96256202795

Technical Session - XV Materials Science & Engineering – III 12 December Thursday 10:50 AM – 12:50 AM Venue: Heat Engine Lab, Room No.: 201 Session Chair: Prof. Dr. Md. Anwarul Kabir Bhuiya (RU, Bangladesh) Session Co-Chair: Md. Wahedul Islam (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
296	Synthesis of Bio-composite Phase Change Material using bioderived graphitic biochar for enhanced thermal properties	
335	Identification and Analysis of TiO2 Nanoparticles Coated with Polyethylene Glycol for Use in A Drug Delivery System	
388	Evaluation and Characterization of Polyhydroxyalkanoates (PHAs) from Renewable Resources.	
409	Green Synthesis of Magnetite Nanoparticles and Study of Its Morphological, Structural, and Magnetic Properties	
421	Green Synthesis of Carbon Nanomaterials Using Lemon Peel, Sugar Cane Bagasse, and Honey: A Comparative Study	
447	Formulation of a Glass-Ceramic Glaze from recycled Glass waste to enhance the Mechanical, Thermal and Chemical properties of Ceramic Tiles	
485	Geometrical effects of pitting corrosion on reliability of unstiffened ship panel	
500	Sustainable Approaches to Noise Control Using Waste Materials	
506	Effect of Cutting Parameters and Machining Environment in Surface Roughness in hardened Steel (52HRC) Using Design of Experiment	
507	An Investigation on Chip Morphology of Hardened Steel (52 HRC) During Hard Turning	
508	Experimental Investigation of Mechanical Properties of Jute Fiber Reinforced Composites	

Technical Session - XVI Industrial Production & Engineering - III 12 December Thursday 10:50 AM – 12:50 PM Venue: Heat Engine Lab, Room No.: 202 Session Chair: Prof. Dr. Firoz Alam (RMIT, Australia) Session Co-Chair: Dr. Md. Asadujjaman (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
372	Design and Performance Optimization of a Helical Coil Tube-in-Tube Heat Exchanger Using Numerical Analysis	
448	Value Stream Mapping: An Analytical Work study on Auto Beam saw machine in a furniture industry	
457	Barriers Of Medical Equipment Manufacturing From The Perspective Of Bangladesh Using Anaylytcal Hierarchy Process	
480	The Impact of Artificial Intelligence in Modern Supply Chain Management in Textile Sector of Bangladesh	
499	An Analysis of Standard Minute Value (SMV) to Increase Productivity in the Sewing Division: A Case Study on Jeans Pant Production	
502	Early Detection of Rice Plant Diseases Using Advanced Image Processing Techniques	
505	Optimizing Sustainable Supplier Selection: A BWM-VIKOR Approach in the Green Steel Industry	
516	Design and Finite Element Analysis of 12-Speed Gearbox	
534	Explainable AI Approach for SPF using CNN-LSTM-Attention Model	

Technical Session- XVII Thermal Engineering -II 12 December Thursday 8:30 AM – 10:30 AM Venue: Heat Engine Lab, Room No.: 203 Session Chair: Prof. Dr. Yingai Jin (Jilin University, China) Session Co-Chair: Dr. Syed Mamun R Rasid (RUET, Bangladesh)		
Paper ID	**Paper Title**	**Page no.**
213	Analysis Of Effective Thermal Properties Of Locally Available Jute Particle Boards	
252	Impacts of Heat Transfer Coefficient and Pressure Drop of R32 with TiO2 Nano-particle in a U-Bend Evaporator	
337	Performance Evaluation of a Direct-Indirect Two-Stage Evaporative Cooler: A Numerical Approach	
424	Heat Transfer Enhancement in a Double Pipe Heat Exchanger with Rectangular Fins and a Twisted Tape Turbulator	
432	Experimental investigation on techno-economic construction of copper-wire based transient hot wire apparatus for measuring the thermal conductivity of liquids	
501	Experimental Investigation of Heat Transfer Enhancement Using Hybrid Nanofluid with Insert Helical Coil in a Double Pipe Heat Exchanger.	
525	Comprehensive Evaluation of Parametric Analysis of Battery Thermal Management Systems in Electric Vehicles	
528	Recent Advancements and Challenges of Thermal Management of Proton Exchange Membrane Fuel Cells	

Technical Session - XVIII
Online II
12 December Thursday 10:50 AM – 12:50 PM
Venue: Heat Engine Lab, Room No.: 204
Session Chair: Prof. Dr. Md. Bodiul Islam (RUET, Bangladesh)
Session Co-Chair: Dr. Shahed Mahmud (RUET, Bangladesh)

Zoom Link: https://bdren.zoom.us/j/94842895487

Technical Session - XIX
Online III
12 December Thursday 10:50 AM – 12:50 PM
Venue: Heat Engine Lab, Room No.: Seminar Room
Session Chair: Prof. Dr. Mohammad Shahed Hasan Khan Tushar (RUET, Bangladesh)
Session Co-Chair: Khairun Nahar (RUET, Bangladesh)

Zoom Link: https://bdren.zoom.us/j/92483604222