NEWSLETTER

AUGUST / 2025

Swami Vivekananda University, Barrackpore

DEPARTMENT OF MECHANICAL ENGINEERING

"NO TECH WITHOUT MECH"

The department of Mechanical Engineering, Swami Vivekananda University offers state of the art education, well equipped classroom, high end laboratories and cutting-edge research facilities for the students to create, enable, apply and spread knowledge in the advanced field of Mechanical Engineering. In addition to curriculum courses, the department contributes to value added courses, guest lecture by industry experts, industrial visits and various add on activities for the students to make them future ready technocrats of academia & industry. We are committed to work in emerging areas and to develop sustainable technologies & innovations pertaining to mechanical engineering and its allied sectors.

WHAT'S NEW

- Visit of Senior Consultant to Mechanical Engineering Department
- Edited Book Publication
- Faculty Participation in Online FDP
- Book Chapter Publication

EDITORIAL

In pursuit of Swami Vivekananda University's vision of excellence, innovation, and entrepreneurship, the Department of Mechanical Engineering is committed to contribute the best possible and feels immense pleasure to share this newsletter with all of you. The department has a vision to emerge as an excellent center of skill-based learning in Mechanical Engineering to develop professionals who are technically competent, ethical and capable of addressing the changing societal needs with credibility. The department has focused to continued enhancement of its facility to cater the overall anticipation of industry and academia. We are thrilled to announce several exciting developments at our department. Department of Mechanical Engineering of Swami Vivekananda University continues to shine with recent accomplishments. This month, the Department of Mechanical Engineering at Swami Vivekananda University welcomed a Senior Consultant, whose visit provided valuable insights for academic and research development. The university also celebrates the publication of two new edited books by faculty members, reflecting the department's growing academic contributions. Additionally, several faculty members actively participated in an online Faculty Development Programme (FDP), strengthening their professional expertise. Adding to these achievements, a book chapter authored by Dr. Arnab Das of the department has been published, marking a significant contribution to research dissemination and academic excellence. For all these achievements, I express my sincere thanks to our students and faculty members for their invaluable contributions and countless efforts. We conclude with a commitment to pursuing excellence and look forward to sharing an enhanced version in the next issue.

HOD (Mechanical Engineering)

Visit of Senior Consultant to Mechanical Engineering Department

The Department and Laboratory of Mechanical Engineering, Swami Vivekananda University, was recently graced by the visit of Mr. Aditya Samdarshi, Senior Consultant, KPMG, India. During his visit, he visited various laboratories and Centers of Excellence of the Mechanical Engineering Department, interacted with faculty members, and appreciated the advanced facilities available. His insightful remarks on research, innovation, and industry collaboration encouraged the department to align its academic practices with global standards. The visit proved to be a valuable experience, providing both motivation and direction for future academic and research endeavors within the university.

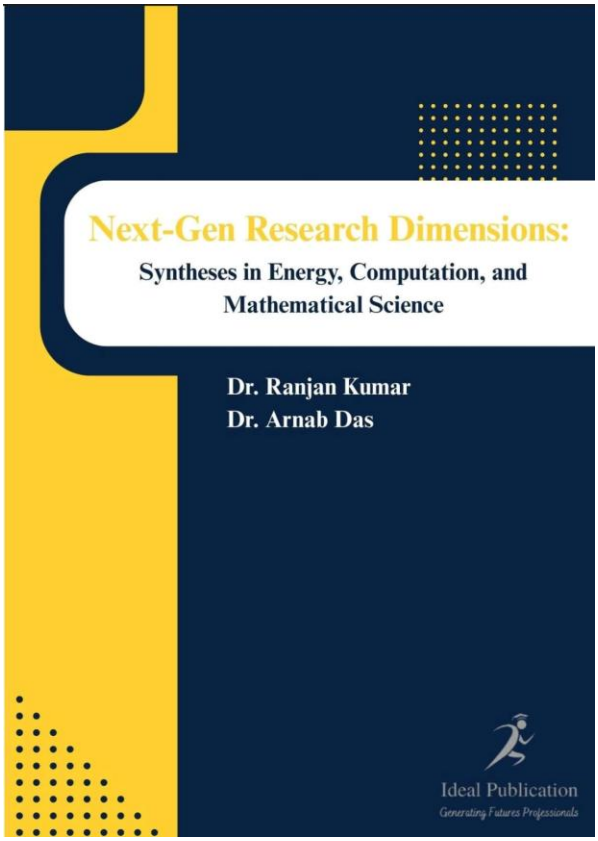
Edited Book Publication

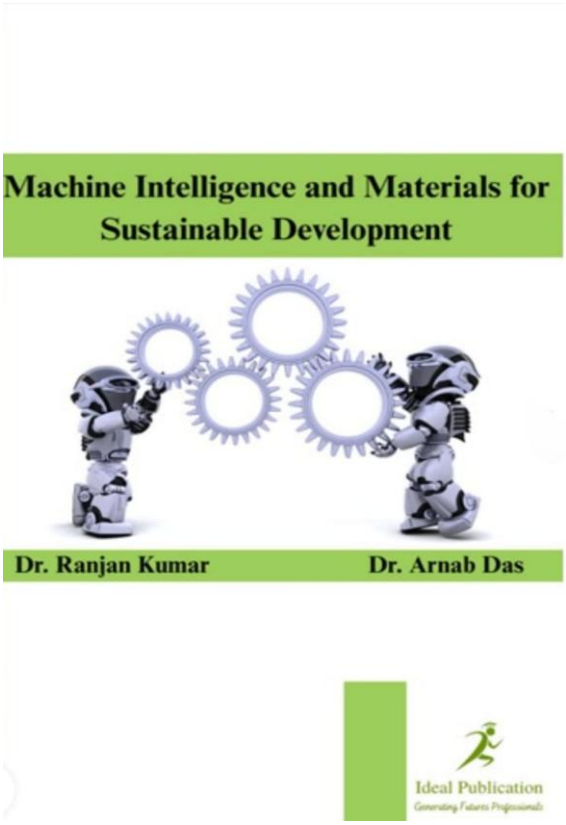
The Department of Mechanical Engineering, Swami Vivekananda University, takes pride in announcing the publication of two significant academic contributions by Dr. Ranjan Kumar and Dr. Arnab Das, published by Ideal Publication.

The first edited book, “Machine Intelligence and Materials for Sustainable Development,” focuses on the integration of artificial intelligence, machine learning, and advanced materials to achieve global sustainability goals.

The second edited book, “Next-Gen Research Dimensions: Syntheses in Energy, Computation, and Mathematical Science,” emphasizes interdisciplinary research, combining energy systems, computational methods, and mathematical sciences to address emerging challenges.

These publications mark a milestone in the department’s pursuit of academic excellence, innovation, and impactful research.





Faculty Participation in Online FDP

Faculty members of the Department of Mechanical Engineering, Swami Vivekananda University actively participated in a One-Week Online Faculty Development Program (FDP) on "Recent Advances and Innovations in Mechanical Engineering (RAIME 2025)", organized by the Department of Mechanical Engineering and Internal Quality Assurance Cell (IQAC), Haldia Institute of Technology, from 4th – 9th August 2025.

The participating faculty members were Mr. Asish Tripathy, Dr. Bikash Panja, Dr. Kingshuk Mandal, and Mr. Sourav Giri. The FDP provided valuable exposure to emerging research trends, innovative practices, and academic advancements in the field of mechanical engineering, enriching the knowledge and teaching capabilities of the participants.

HALDIA INSTITUTE OF TECHNOLOGY

An Autonomous NAAC Accredited Technical Institute with "A" Grade
Hatiberia, ICARE Complex, Haldia, Purba Medinipur, West Bengal

CERTIFICATE
OF PARTICIPATION

This is certified that Dr./Mr./Mrs./Ms. Asish Tripathy of Swami Vivekanand University has participated in One-Week Faculty Development Program on "**Recent Advances and Innovations in Mechanical Engineering (RAIME 2025)**" jointly organized by Department of Mechanical Engineering & Internal Quality Assurance Cell (IQAC), Haldia Institute of Technology, held online during 4th – 9th August,2025.

Prof.(Dr.) Tarun Kanti Bera
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Prof.(Dr.) Gautam Kumar Bose
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Prof.(Dr.) Dilip Dey
Dean, School of Engineering and IQAC Co-ordinator
Haldia Institute of Technology

Book Chapter Publication

The Department of Mechanical Engineering, Swami Vivekananda University, is proud to announce the publication of a book chapter by Dr. Arnab Das, titled "Surface Topographical Characterization of ZnO Nanostructured CFRP Composite in High Speed Microdrilling." The chapter is published in the volume Micro Manufacturing (Lecture Notes in Mechanical Engineering, Springer, 2026).

This work highlights advanced research on nanostructured composites and machining optimization, marking a significant contribution to international research and innovation.

Surface Topographical Characterization of ZnO Nanostructured CFRP Composite in High Speed Microdrilling

Arnab Das, Ravi Shankar Rai, and Vivek Bajpai

Abstract This paper describes the surface characteristics of ZnO nanostructured CFRP composites in high speed microdrilling process. Two different nanostructured composites have been developed by varying the molar concentration of ZnO growth solution from 15 to 25 mM by hydrothermal method. Further, high speed microdrilling operations have been performed on those nanostructured CFRP composites along with unstructured one. Three different levels of spindle rotational speeds (25000, 37500, and 50000 rpm) and feed rates (1 µm/rev, 3 µm/rev, and 6 µm/rev) have been incorporated in the machining operation. The average surface roughness, delamination, circularity, and burr height have been measured. All those parameters have been improved significantly for nanostructured composites as compared to unstructured one. The best surface finish has been found on 15 mM ZnO nanostructured composite at 50000 rpm and 3 µm/rev feed rate with an average surface roughness of 1.88 µm. Favourable machining conditions have been achieved at elevated rotational speed and enhanced feed rate during the microdrilling operation of CFRP composites.

Keywords ZnO nanostructured CFRP composites · High speed microdrilling · Surface topography · Delamination

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