NEWSLETTER

Swami Vivekananda University, Barrackpore

MARCH / 2026

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

- Participation in Product–Market Fit Workshop
- Women's Day Programme "Nari the Boss"
- Research Publication in IEEE Conference
- Patent Publication on Intelligent Wire Arc Additive Manufacturing System
- Participation in Lecture on Additive Manufacturing

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 highlighted its dynamic academic and co-curricular engagement through several notable activities. Faculty and students actively participated in a Product–Market Fit Workshop, enhancing their understanding of innovation and entrepreneurship. The department also celebrated Women's Day with the programme "Nari the Boss," promoting empowerment and leadership. Academic excellence was reflected through a research publication in an IEEE Conference and a patent publication on an Intelligent Wire Arc Additive Manufacturing System. Additionally, faculty participation in a lecture on Additive Manufacturing enriched knowledge in emerging manufacturing technologies. 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)

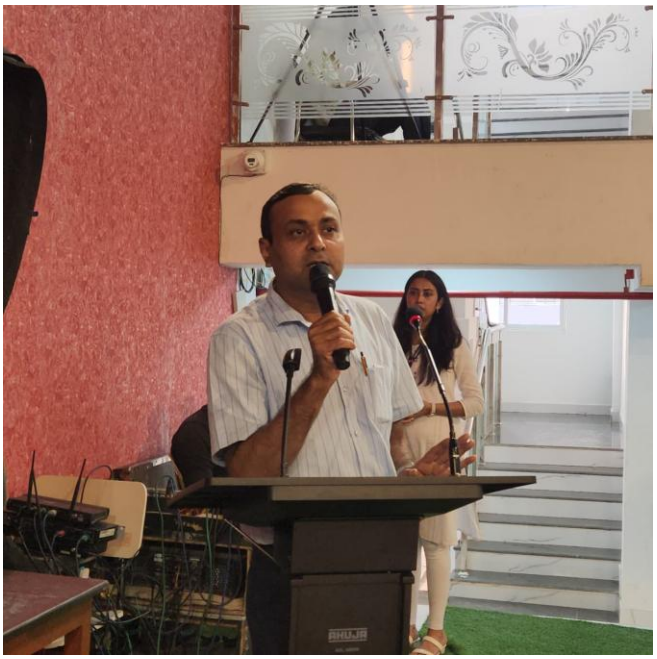
Participation in Product–Market Fit Workshop

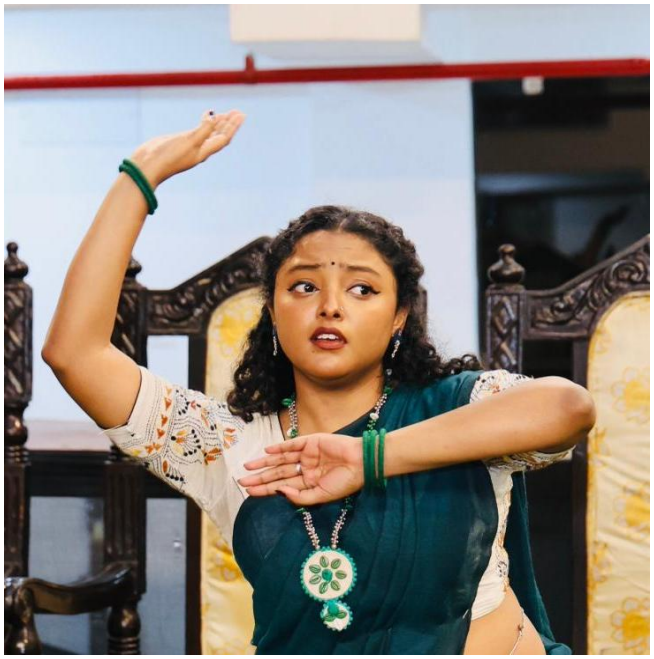
The Institution's Innovation Council of Swami Vivekananda University, Kolkata organized a workshop on "Product–Market Fit, Prototype/Process Design and MVP Development" on 24th March 2026. The session was delivered by Prof. (Dr.) Nirmalya Bandyopadhyay, Director, PIMR Gwalior. Faculty members and students from the Department of Mechanical Engineering actively participated. The workshop focused on identifying market needs, developing prototypes, and creating Minimum Viable Products (MVPs). It offered practical insights into real-world product development. Mechanical Engineering students gained valuable exposure, enhancing their technical skills, innovation capabilities, and understanding of entrepreneurship and industry-oriented design.

Celebrating Women's Day: Empowering "Nari the Boss"

On International Women's Day, a university-level programme titled "Nari the Boss" was organized at the Satyajit Ray Muktamancha of Swami Vivekananda University. The event celebrated the achievements and empowerment of women across various fields.

Faculty members and students from the Department of Mechanical Engineering actively participated in the programme. The departmental faculties also contributed significantly to the arrangement and smooth coordination of the event. The programme featured an inspiring speech on women empowerment by Professor Dr. Bikash Panja, who emphasized equality, leadership, and the role of women in shaping society. A graceful dance performance by Ms. Ombika Ojha added cultural vibrancy to the event. Overall, the programme was engaging and meaningful, promoting awareness, respect, and empowerment among students and faculty members.





Faculty Achievement: Research Publication in IEEE Conference

The Department of Mechanical Engineering proudly acknowledges the research achievement of Joydip Roy, Assistant Professor, who has co-authored a paper titled **"A Low-Cost Intelligent 3D-Printed Prosthetic Arm Controlled Exclusively by EEG Signals Using Adaptive Machine Learning."** The paper has been published in a reputed conference under IEEE. The study focuses on developing an affordable prosthetic arm using EEG signals and machine learning techniques. It highlights the integration of mechanical engineering with biomedical and AI-based applications.

This achievement showcases the department's dedication to research, innovation, and interdisciplinary technological development.

Conferences > 2026 9th International Confer...

A Low-Cost Intelligent 3D-Printed Prosthetic Arm Controlled Exclusively by EEG Signals Using Adaptive Machine Learning

Publisher: IEEE

Cite This | PDF

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All Authors

22 Full Text Views

Abstract

Document Sections

I. Introduction

II. Research Methodology

III. Result Analysis &

Abstract:

Electroencephalography (EEG)-based control has emerged as a promising solution for intuitive and non-invasive control of assistive robotic devices, particularly for individuals with severe limb loss or neuromuscular impairments where muscle signals are unavailable. This paper presents the design and development of a low-cost, lightweight 3D-printed prosthetic arm controlled exclusively by EEG signals. The proposed system decodes user movement intention directly from brain activity using signal processing, sensor fusion, and adaptive

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2012 11th International Conference on Information Science, Signal Processing and their Applications (ISSPA)

Published: 2012

Patent Publication on Intelligent Wire Arc Additive Manufacturing System

The Department of Mechanical Engineering proudly announces the publication of a patent titled "Intelligent Wire Arc Additive Manufacturing System with Adaptive Energy Input and In-Situ Diagnostics" (Application No. 202631018177 A). Filed on 18 February 2026 and published on 6 March 2026, the innovation marks a significant advancement in additive manufacturing.

The system was developed collaboratively by faculty members of the Mechanical Engineering Department along with other departments of Swami Vivekananda University. It integrates adaptive control, real-time sensing, and energy optimization to enhance fabrication quality and efficiency, reflecting the university's strong emphasis on interdisciplinary research and innovation.

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202631018177 A

(19) INDIA

(22) Date of filing of Application :18/02/2026

(43) Publication Date : 06/03/2026

(54) Title of the invention : Intelligent Wire Arc Additive Manufacturing System with Adaptive Energy Input and In-Situ Diagnostics

(51) International classification	:B23K 9/04, B23K 9/095, B23K 9/133, B23K 9/12, B23K 9/167
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
An intelligent wire arc additive manufacturing system (100) with adaptive energy input and in-situ diagnostics is described herein for scalable fabrication and repair of metallic components via layer by layer deposition. The system (100) includes: an arc-based deposition unit (10) operating at 80–350 A current and 15–35 V voltage for stable molten pool generation and uniform bead formation; a wire feed mechanism (20) supplying wire at 2–8 m/min to achieve 2–6 kg/h deposition rates with steels, aluminum alloys, titanium alloys, etc.; a motion control system (30) using multi axis robotic arm or CNC gantry at 200–800 mm/min torch speeds for adaptive toolpaths and high accuracy; a real time sensing network (40) monitoring arc voltage/current, interpass temperature (50–300 DEG C), bead width (3–8 mm), layer height (1–3 mm), heat input, and cooling rate; an adaptive control unit (50) with closed loop algorithms dynamically adjusting parameters to minimize porosity, residual stresses, distortion, and lack of fusion while ensuring consistent mechanical properties; a data communication module (60) for real time visualization, analytics, and predictive maintenance; and a power management unit (70) optimizing energy use.

No. of Pages : 26 No. of Claims : 10

Faculty Participation in Lecture on Additive Manufacturing

Faculty members from the Department of Mechanical Engineering, Swami Vivekananda University, actively participated in the Monthly Faculty Lecture Series held on 27th March 2026 at Annex Hall. The lecture, titled “Additive Manufacturing: Journey from 2D to 6D and Beyond,” was delivered by Dr. Kaushik Kumar, Professor, Birla Institute of Technology, Mesra, Ranchi. The session provided valuable insights into recent advancements in additive manufacturing, a key area in modern mechanical engineering.

Departmental faculties attended the session with keen interest, as the topic is highly relevant to manufacturing, design innovation, and emerging technologies. The lecture enhanced their understanding of advanced manufacturing techniques and industrial applications.

Dr. Bikash Panja, Professor of Mechanical Engineering and Dean of Engineering, played a key role in the successful organization and coordination of the programme.