DAYANANDA SAGAR UNIVERSITY

ACCREDITED WITH GRADE A+ NAAC

SCHOOL OF ENGINEERING

SOE - "The Weekly Buzz"

The Official Weekly Newsletter of School of Engineering

Week#25 (June 16 to 21st 2025)

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SCHOOL OF ENGINEERING

VISION

- Transform lives through excellence in engineering education, research and innovation with an emphasis on sustainability, inclusive technologies and global needs.

MISSION

- Design and deliver contemporary engineering curricula to address regional and global needs while emphasizing ethics, values, integrity and regional relevance.

- Carryout high impact academic research, industry projects and innovation activities with active student engagement to advance science and engineering knowledge and state-of-the art industry practices.

- Develop regional and national leaders to advance the society and economy.

Faculty Contributions

Department Of Aerospace Engineering

A research paper authored by Prof. Kartik S. Tandel (AE–DSU, Bangalore), Prof. Ramamohan Bhanumurthy (RVU, Bangalore), Prof. D. B. Shrikanth (IIT Dharwad), Prof. G. K. Suryanarayana (AE–DSU, Bangalore), and Dr. D. B. Singh (CSIR-NAL) was presented at the 4th International Nonlinear Dynamics Conference (2025), held at Stevens Institute of Technology, New Jersey, USA, from 22–25 June 2025. The presentation was delivered by Prof. V. Shrikanth from IIT Dharwad. The research work is a collaborative effort involving DSU, RVU, CSIR-NAL, and IIT Dharwad. The paper investigates the aeroelastic behavior of GFRP composite beams embedded with Nitinol Shape Memory Alloys (SMAs) under aerodynamic loading. Using a combination of experimental wind tunnel testing and numerical modeling, the study demonstrates that SMA-embedded structures exhibit improved damping, delayed flutter onset, and reduced resonance-induced instabilities. The research provides critical insights into the dynamic stability of aerospace structures, highlighting the potential of smart material-based composites in enhancing safety and efficiency in aerospace applications.

Limit cycle oscillation of Nitinol embedded laminate beam: Experimental insight into geometric and material nonlinearity

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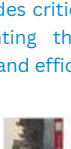
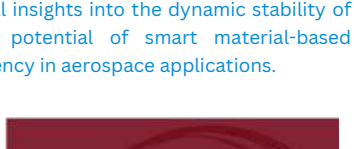
Abstract. This study investigates the aeroelastic behavior and nonlinear dynamics of high-aspect-ratio Glass Fiber Reinforced Polymer (GFRP) composite beams under aerodynamic loading. A combination of experimental and numerical approaches was employed to analyze Limit Cycle Oscillations (LCO) and mitigate their inhibition. The experimental setup included wind tunnel testing at airflow speeds up to 30 m/s, where image processing techniques (capturing at 60 frames per second) were integrated with accelerometer measurements for Frequency Response Function (FRF) analysis. The results revealed distinct frequencies and highlighted the susceptibility of plain GFRP specimens to resonance-induced instabilities. To enhance structural stability, Shape Memory Alloys (SMAs), specifically Nitinol wires, were embedded within the GFRP matrix. The SMA-embedded specimens exhibited significantly improved damping characteristics, with reduced vibrational amplitudes across both time and frequency domains. The superelasticity of Nitinol enabled effective energy dissipation, delaying the onset of flutter and suppressing resonance phenomena. Numerical analysis using the Von der Pol equation successfully captured weak nonlinearities in the system, validating the experimental observations and modeling the dynamic behavior of the specimens. The findings demonstrate that embedding SMAs into GFRP composites substantially enhances their aeroelastic performance by mitigating velocity-induced instabilities. The strong agreement between experimental and computational results underscores the robustness of the methodologies employed. This research provides valuable insights into the dynamic response and stability of aerospace structures, highlighting the potential of smart material-based composites to improve safety and efficiency in aerospace applications.





Dr. G. K. Suryanarayana, Professor, Department of Aerospace Engineering, School of Engineering – Dayananda Sagar University (SOE–DSU), was acknowledged by the Journal of Spacecraft and Rockets for reviewing the manuscript titled “A Database of CFD-based Buffet-Induced Forces for Artemis I Structural Response Evaluation.” The journal, a reputed publication in the field of aerospace engineering, appreciated Dr. Suryanarayana’s voluntary contribution to the peer review process, which plays a vital role in maintaining the quality and integrity of scholarly publications. This recognition reflects the faculty's active engagement in global academic and research activities.

Department Of Computer Science and Engineering

Dr. J. S. Nixon, Professor, Department of CSE, is pleased to share that one of their Q1 research papers has been honored with the Best Paper Award, along with a cash prize of CHF 500 (approximately INR 53,000.00). The award-winning paper, titled "Machine Learning for Data Center Optimizations: Feature Selection Using Shapley Additive exPlanation (SHAP)", was co-authored by Dr. Nixon in collaboration with Yibrah Gebreyessus, Damian Dalton, Davide De Chiara, and Marta Chinnici. Published in the Future Internet journal (2023, 15(3), 88), a reputed Q1 open-access journal by MDPI, the paper was recognized for its significant contribution to data center optimization through advanced machine learning techniques. The award was formally presented in June 2025 by Mr. Stefan Tochev, Chief Executive Officer of MDPI. The study’s innovative application of SHAP for feature selection represents a notable advancement in the field of intelligent infrastructure.

Prof. Mala B. A. and Prof. Arpita Paria, Assistant Professors from the Department of Computer Science and Engineering, Dayananda Sagar University, participated in the Second International Conference on Emerging Technologies in Science and Engineering (ICETSE 2025) organized by Akshaya Institute of Technology, Tumkur, Karnataka, held on June 19–20, 2025. Prof. Mala B. A. presented a paper titled "A Decentralized Electronic Health Record (EHR) System to Enhance Data Security and Accessibility in Healthcare Using Ethereum Blockchain Technology," co-authored with student contributors. Additionally, both Prof. Mala B. A. and Prof. Arpita Paria presented another paper titled "AVI-Based Assessment of Communication Skills and Personality Characteristics." Their contributions showcased innovative research in blockchain-based healthcare solutions and AI-driven personality assessment, reflecting the department's commitment to interdisciplinary advancements in computing and real-world applications.

The following faculties from Department of CSE, DSU successfully participated in 5-Days Faculty Development Program on "Next-Gen Data Science:Deep Learning, NLP and Responsible AI" from 16/06/2025 to 20/06/2025 organized by Department of CSE, CMR Institute of Technology.

Prof. Annapurna Shobitha S, Prof. Arjun Krishnamurthy, prof. Arpita Paria, Prof. Bharath B, Dr. Damodharan D, Prof. Diana George, Dr. George Fernandez I, Dr. Revathi V, Dr. T Gayathri, Dr. Sasikala Nagarajan, Dr. Jeeva S, Prof. Mala B A, Prof. Muthu Bala N, Prof. Priyanka S Marellavar, Prof. Shilpa Sudheendran, Prof. Soham Ghosh, Prof. Sowmya H D, Prof. Sushma. D.S, Prof. Tanaya Bala Behera.

Prof. Bharath M B, Assistant Professor, Department of CSE has presented a paper titled “Cross-Site Scripting Attack Detection: A Comparative Study of Traditional and Deep Learning-Based Solutions”, in the Second International Conference on Emerging Technologies in Science and Engineering, Akshaya Institute of Technology, Tumkur, Karnataka during June 19-20, 2025.


CERTIFICATE
OF APPRECIATION
Second International Conference on
"EMERGING TECHNOLOGIES in SCIENCE & ENGINEERING"

Department Of Physics

Dr. Sudeep Kumara K, Assistant Professor in the Department of Physics, Dayananda Sagar University, has been featured in prominent media outlets including The Hindu and The Times of India (June 19, 2025) for his impactful research on air pollution in community kitchens of Dakshina Kannada. His study, published in Environmental Monitoring and Assessment (Feb 2025), highlights dangerously high particulate matter (PM) levels and associated health risks faced by kitchen workers, irrespective of the type of fuel used. The research stresses the urgent need for better ventilation, cleaner fuel adoption, and occupational health safeguards. The Department of Physics proudly congratulates Dr. Sudeep on his significant contribution to community-centric and health-focused scientific research.


SCHOOL OF
PHYSICS FACULTY RESEARCH
SPOTLIGHT IN THE NEWS MEDIA
HEALTH AT RISK IN
COMMUNITY KITCHENS!
CONGRATULATIONS

Department Of Computer Science and Technology

Dr. Santosh Kumar J published a patent on "IoT-Based Smart Power Meter System for Real-Time Monitoring and Efficient Energy Management" (Application Number: 202541055050).

Office of the Controller General of Patents, Designs & Trade Marks
Department For Promotion of Industry and Internal Trade
Ministry of Commerce & Industry
Government of India

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Application Details

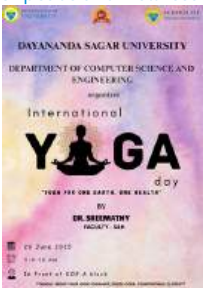
APPLICATION NUMBER	202541055050
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	07/06/2025
APPLICANT NAME	1. Santosh Kumar Jankatti 2. Dayananda Sagar University
TITLE OF INVENTION	IoT-Based Smart Power Meter System for Real-Time Monitoring and Efficient Energy Management
FIELD OF INVENTION	COMPUTER SCIENCE
E-MAIL (As Per Record)	santoshkumar-cs@dsu.edu.in
ADDITIONAL E-MAIL (As Per Record)	santoshkumar-cs@dsu.edu.in
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	13/06/2025

Application Status

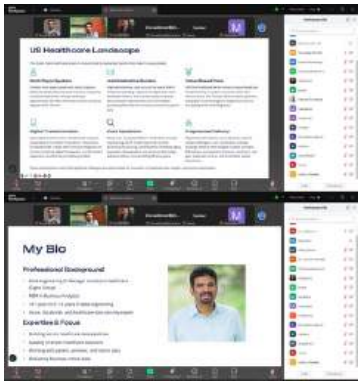
Departmental Activities

Department Of Computer Science and Engineering

The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, successfully organized International Yoga Day on June 20th, 2025, under the theme “Yoga for One Earth, One Health” to promote the significance of yoga in achieving holistic well-being. Dr. Sreemathy, Faculty – S&H, led the session as the yoga guru, guiding the faculty members of the CSE department through various practices aimed at enhancing physical, mental, and emotional balance. The event witnessed active participation from the HoD and faculty members, fostering a spirit of mindfulness and unity. Special appreciation was extended to Dr. Girisha for his encouragement and to Dr. Sreemathy for her inspiring and graceful guidance. The celebration reflected a shared commitment to a healthier lifestyle and the continued practice of yoga as a path to inner peace and wellness.



The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, organized an engaging and insightful online industry expert lecture titled “From Raw Data to Real Impact: Securing and Scaling Healthcare Data Pipelines for U.S. Healthcare Insurance” on 20th June 2025 at 10:00 AM. The session was delivered by Mr. Rakesh Pai, Data Engineering Senior Manager at eviCore Healthcare (Cigna Group), Franklin, Tennessee, USA. Aimed at Undergraduate and Postgraduate students and faculty, the lecture provided a comprehensive understanding of the U.S. healthcare ecosystem and the critical role of data engineering in building scalable and secure data pipelines. Mr. Pai enriched the session with live architectural diagrams, practical tools, and examples from production-grade systems, offering deep insights into healthcare analytics and AI-driven diagnostic models. The event effectively bridged the gap between academic concepts and real-world industry applications. The department extends its sincere thanks to Mr. Rakesh Pai for his valuable contribution and to faculty coordinators Dr. Tanvir H Sardar and Prof. Bharath M B for organizing the impactful session.



Student Activities

Mr. Shreyas H Reddy (ENG21CS0388), Mr. Shreyas Sridhar (ENG21CS0389), Mr. Shrinikethan S(ENG21CS0392), and Mr. Sanju John (ENG21CS0361), 2025 graduated CSE Students has presented paper entitled “Emergency Traffic Prioritization System with Priority-based Dynamic Route Optimization and IoT-Enabled Dynamic Signal Control” under the guidance of Dr. Sasikala N, Assistant Professor, in the IEEE 5th International Conference on Intelligent Technologies (CONIT 2025) during 20th to 22nd June 2025.

Ms. D N Padmashri (ENG22CS0283) , Ms. Boomika B (ENG22CS0271) , Ms. Arushi G Hiregoudar (ENG22CS0531) , and Ms. Moni Shree S (ENG22CS0372), 6th semester CSE Students has presented a paper entitled “ Comparative Analysis and Evaluation of Deep Learning Models for Efficient Waste Classification” under the guidance of Dr. Damodharan D, Assistant Professor, in the IEEE 5th International Conference on Intelligent Technologies (CONIT 2025) during 20th to 22nd June 2025.

Ms. B Saishree (ENG22CS02600), Ms. Deepthi S V (ENG22CS0287), Ms. Deethiksha R (ENG22CS0288) and Ms. Harini Sri S (ENG22CS0314), 6th semester CSE Students has presented a paper entitled “FoodMuse: Health-Aware Food Recommendation System Using Machine Learning and API-Based Food Data” under the guidance of Dr. Damodharan D, Assistant Professor, in the IEEE 5th International Conference on Intelligent Technologies (CONIT 2025) during 20th to 22nd June 2025.

"SPECIAL INTEREST GROUP (SIG) MEETING PROCEEDINGS"

Department Of Aerospace Engineering

The Special Interest Group (SIG) on Space Technologies conducted a strategic meeting on June 20, 2025, at Dayananda Sagar University's Harohalli Campus, bringing together faculty and technical leads from DSU and DSCE. The session was coordinated by the Department of Aerospace Engineering, and the department chairman warmly greeted all the team members. The meeting focused on reviewing infrastructure and ongoing research in CubeSat development and RF system integration, while strengthening collaborations with ISRO, Ananth Technologies, Dhruva Aerospace, and key start-ups. Discussions explored future research directions in AI-driven satellite systems, orbital communication, thermal coatings, space robotics, and autonomous UAVs. Emphasis was also placed on student engagement through hands-on projects, workshops, and inter-university hackathons. This initiative marks a significant step in consolidating interdisciplinary expertise and advancing DSU's contributions to national and global space technology missions.

Department Of Artificial Intelligence & Robotics

A SIG (Special Interest Group) meeting was held on June 20, 2025, with active participation from DSCE, DSATM, and the School of Engineering, Dayananda Sagar University, Bengaluru, coordinated by the Department of Artificial Intelligence & Robotics. The meeting focused on fostering collaborative research in AI, Robotics, Renewable Energy, and Smart Manufacturing. Key presentations from Dr. Pramod Kumar Naik, Dr. R. Bhaduri, Dr. Gangadhar T.G., and Dr. Bharath Kumar S. showcased institutional strengths and research synergies, particularly in areas such as Robotic Vision, Control Systems, Machine Learning, and Composites. The discussion successfully identified several joint research opportunities, with immediate plans for a software assessment meeting by July 10, 2025, and long-term goals including at least two joint publications and one patent filing within 18–24 months. The meeting served as a strong step toward advancing interdisciplinary research through strategic collaboration.

Department Of Computer Science and Engineering

On 20th June 2025, the Department of Computer Science and Engineering at Dayananda Sagar University organized a Special Interest Group (SIG) research meeting on Blockchain, Cloud, IoT, and Security in collaboration with Dayananda Sagar College of Engineering and Dayananda Sagar Academy of Technology and Management. The session was held in Room 325 and commenced with a welcome address by Dr. Bipin Kumar Rai, the lead of the SIG. Faculty members and researchers actively participated, sharing their insights on emerging trends and collaborative research opportunities in these rapidly evolving domains. Notably, Dr. Shalini S, Associate Professor from Dayananda Sagar Academy of Technology and Management, attended the session and expressed her views, emphasizing the importance of multidisciplinary research and proposing collaborative initiatives with the SIG group for future projects. The meeting concluded with a productive exchange of ideas and a plan to formalize joint research activities.

Department Of Computer Science and Technology

The Department of Computer Science & Technology at Dayananda Sagar University organized a Special Interest Group (SIG) meeting on Quantum Computing and Cloud Computing Technologies on June 20, 2025, at the CST Seminar Hall. The event, held in the presence of the Dean of SoE, Dr. Udayakumar Reddy K R, along with the Vice Chancellor, Pro-Vice Chancellor, Principal of DSATM, and R&D Head of DSCE, aimed to promote advanced research and lay the foundation for a future Centre of Excellence. SIG coordinators Dr. Shahina Parveen M and Dr. Sudha D. highlighted the significance of emerging technologies, followed by active participation from faculty across DSU, DSATM, and DSCE. The meeting featured sessions on the fundamentals, applications, and future directions of Quantum and Cloud Computing, with key action points including the formation of dedicated working groups and adoption of platforms such as IBM Qiskit, AWS Braket, and Microsoft Azure Quantum. The session concluded with a collaborative discussion to drive forward the department's research initiatives in these frontier technologies.

Department Of Electronics and Communication Engineering

The Department of Electronics and Communication Engineering at Dayananda Sagar University organized a series of Special Interest Group (SIG) meetings on 20th and 21st June 2025, in collaboration with DSCE and DSATM. These meetings aimed to promote inter-institutional research across three key domains: Interdisciplinary Electrical Science, Signal Processing & Communication, and VLSI & Embedded Systems. The discussions focused on identifying common research areas, resource sharing, joint activities, and the formation of a Research Coordination Committee. Key outcomes included plans for collaborative workshops, faculty exchanges, and the creation of dedicated communication channels to strengthen research synergy across DSI institutions.

SCHOOL OF ENGINEERING

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