



Department of Mechanical Engineering

MECH-TIMES

**“Transforming Ideas into Machines, and Machines into
Marvels of Engineering Excellence”**

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Message from the Director



As we celebrate the success and progress of the Mechanical Engineering Department at SLIET Longowal, I extend my heartfelt congratulations to the entire Department for its dedication to excellence in Teaching, Research, and Innovation.

The Department of Mechanical Engineering has consistently been at the forefront of academic and research endeavours, and its exceptional **placement record of 92.56% in the academic session 2024-25** stands as a proud testament to the hard work of our students, faculty, and staff.

I am pleased to share SLIET's impressive achievement in **the NIRF 2025 Rankings, securing 79th position in the Engineering category and 90th in the University category**. These accomplishments stand as a testament to our unwavering commitment to excellence, academic rigor, innovation, and skill-oriented education.

At SLIET, our greatest strength lies in our people-the dynamic community of students, faculty, and staff whose passion for learning, creativity, and dedication transforms our campus into a truly motivating and enriching environment.

As we embark on this new academic year, let us work collectively to further elevate standards in academics and research, pioneer innovative practices, and make impactful contributions to society.

Together, we will continue to strengthen SLIET's legacy as a hub of excellence, nurturing future leaders and contributing to a brighter and more sustainable future.

Best wishes,

A handwritten signature in black ink, which appears to read 'M. Paswan', written over a horizontal line.

Prof. Mani Kant Paswan
Director, SLIET Longowal

निदेशक का संदेश



एसएलआईटी, लौंगोवाल के यांत्रिक अभियांत्रिकी विभाग की सफलता और निरंतर प्रगति के इस अवसर पर, मैं शिक्षण, अनुसंधान एवं नवाचार में उत्कृष्टता के प्रति समर्पण के लिए पूरे विभाग को हार्दिक बधाई देता हूँ।

यांत्रिक अभियांत्रिकी विभाग सदैव शैक्षणिक एवं अनुसंधान गतिविधियों में अग्रणी रहा है। **शैक्षणिक सत्र 2024-25 में 92.56% का उत्कृष्ट प्लेसमेंट** रिकॉर्ड हमारे छात्रों, संकाय सदस्यों एवं कर्मचारियों की कड़ी मेहनत और प्रतिबद्धता का सशक्त प्रमाण है।

मुझे यह साझा करते हुए प्रसन्नता हो रही है कि **एनआईआरएफ 2025 रैंकिंग में एसएलआईटी ने इंजीनियरिंग श्रेणी में 79वाँ तथा विश्वविद्यालय श्रेणी में 90वाँ स्थान प्राप्त किया है।** ये उपलब्धियाँ उत्कृष्टता, शैक्षणिक कठोरता, नवाचार एवं कौशल-आधारित शिक्षा के प्रति हमारी अटूट प्रतिबद्धता को दर्शाती हैं।

एसएलआईटी की सबसे बड़ी शक्ति हमारे लोग हैं—छात्रों, संकाय सदस्यों और कर्मचारियों का वह जीवंत समुदाय, जिनका ज्ञान के प्रति उत्साह, रचनात्मकता और कार्य के प्रति समर्पण हमारे परिसर को एक प्रेरणादायी और समृद्ध वातावरण बनाता है।

इस नए शैक्षणिक सत्र की शुरुआत के साथ, आइए हम सभी मिलकर शिक्षण एवं अनुसंधान के मानकों को और ऊँचा उठाने, नवाचारी प्रयासों को बढ़ावा देने तथा समाज के लिए सार्थक योगदान देने का संकल्प लें।

साथ मिलकर हम एसएलआईटी को उत्कृष्टता के केंद्र के रूप में और सुदृढ़ करेंगे, उज्ज्वल भविष्य का निर्माण करेंगे तथा एक बेहतर और सतत कल की दिशा में आगे बढ़ेंगे।

शुभकामनाओं सहित,

प्रो. मणि कांत पसवान
निदेशक, एस.एल.आई.टी. लौंगोवाल

Message from the Head of the Department



Warm Greetings,

It gives me immense pleasure and a deep sense of pride to present Volume V, Issue II of our departmental biannual magazine, 'MechTimes'. This magazine is not merely a collection of pages; it is a vibrant reflection of the six months of academic dedication, technical innovation, and collective achievements of our students and faculty members.

The Department of Mechanical Engineering at Sant Longowal Institute of Engineering and Technology (SLIET) has always been committed to high-quality education and research. In this current era, where technology is evolving every moment, our endeavor is to ensure that our students are not confined to textbook knowledge alone. Instead, we strive to prepare them with practical skills and the ability to tackle industrial challenges. This issue highlights the significant milestones our department has achieved through research papers, workshops, and industrial visits.

I extend my heartfelt congratulations to all the students and teachers who have enriched this magazine with their creativity and knowledge. I especially commend the editorial team for their hard work in compiling this issue. I am fully confident that this magazine will ignite a new spark of knowledge within all of you and inspire us to scale new heights in the future.

A handwritten signature in black ink, appearing to read 'Shankar Singh', written in a cursive style.

Prof. Shankar Singh
Head
Department of Mechanical Engineering
SLIET Longowal

विभागाध्यक्ष का संदेश



सादर अभिवादन,

मुझे हमारे विभाग की छमाही पत्रिका 'MechTimes' के खंड V, अंक II को प्रस्तुत करते हुए अपार हर्ष और गर्व की अनुभूति हो रही है। यह पत्रिका केवल कागज़ के कुछ पन्ने नहीं है, बल्कि हमारे विद्यार्थियों और संकाय सदस्यों की छह महीनों की शैक्षणिक तपस्या, तकनीकी नवाचार और सामूहिक उपलब्धियों का एक जीवंत प्रतिबिंब है।

संत लोंगोवाल अभियांत्रिकी एवं प्रौद्योगिकी संस्थान (SLIET) का यांत्रिक अभियांत्रिकी विभाग सदैव से ही उच्च गुणवत्ता वाली शिक्षा और अनुसंधान के लिए प्रतिबद्ध रहा है। वर्तमान युग में, जहाँ तकनीक हर क्षण बदल रही है, हमारा प्रयास है कि हम अपने छात्रों को केवल किताबी ज्ञान तक सीमित न रखें, बल्कि उन्हें व्यावहारिक कौशल (Practical Skills) और औद्योगिक चुनौतियों के लिए तैयार करें। यह अंक हमारे विभाग के उन मील के पत्थरों को दर्शाता है जिन्हें हमने शोध पत्रों, कार्यशालाओं और औद्योगिक दौरों के माध्यम से हासिल किया है।

मैं उन सभी छात्रों और शिक्षकों को बधाई देता हूँ जिन्होंने अपनी रचनात्मकता और ज्ञान के माध्यम से इस पत्रिका को समृद्ध किया है। विशेष रूप से संपादकीय टीम की प्रशंसा करता हूँ जिन्होंने कड़ी मेहनत से इस अंक को संकलित किया है। मुझे पूर्ण विश्वास है कि यह पत्रिका आप सभी के भीतर ज्ञान की एक नई लौ जलाएगी और हमें भविष्य की नई ऊंचाइयों को छूने के लिए प्रेरित करेगी।

शंकर सिंह

प्रो. शंकर सिंह

विभागाध्यक्ष

यांत्रिक अभियांत्रिकी विभाग

एस.एल.आई.ई.टी. लोंगोवाल

Message from the Editor



It is a privilege to bring to you the latest edition of MechTimes (Vol. V, Issue II). This issue serves as a collective mirror of the vibrant academic life within the Department of Mechanical Engineering at SLIET Longowal. Over the past six months, our department has witnessed a remarkable journey of growth, marked by a balance of student nurturing, faculty excellence, and high-level research.

In these pages, you will find glimpses of our commitment to continuous learning through various development programs and workshops designed to keep us at the cutting edge of technology. From welcoming our fresh talent through foundational induction programs to celebrating the pinnacle of academic achievement in Ph.D. defenses, this issue captures the full spectrum of our departmental life. Our focus on quality research and publications remains a cornerstone of our progress, showcasing the intellectual depth of both our faculty and students.

This publication would not have been possible without the vision and support of our Director, Prof. Mani Kant Paswan, whose leadership continues to inspire us toward excellence. We are also deeply grateful to our Head of Department, Prof Shankar Singh for his constant mentorship and for providing us the creative freedom to document these milestones

I must also appreciate the hard work of the editorial team members who worked behind the scenes to compile this issue. Finally, a sincere thank you to all the contributors for sharing their achievements and insights. We hope this issue provides a meaningful look into the heart of our department.

Happy Reading!

A handwritten signature in black ink, appearing to be 'DK' with a flourish.

Dr. Vivek Kumar
Editor, MechTimes
Department of Mechanical Engineering
SLIET Longowal

संपादक की ओर से संदेश



मेक-टाइम्स (MechTimes - खंड V, अंक II) का नवीनतम संस्करण आपके समक्ष प्रस्तुत करना मेरे लिए सौभाग्य की बात है। यह अंक स्लिट (SLIET) लोंगोवाल के मैकेनिकल इंजीनियरिंग विभाग के भीतर जीवंत शैक्षणिक जीवन के एक सामूहिक प्रतिबिंब के रूप में कार्य करता है। पिछले छह महीनों में, हमारा विभाग विकास की एक उल्लेखनीय यात्रा का गवाह रहा है, जिसमें छात्रों का मार्गदर्शन, संकाय की उत्कृष्टता और उच्च स्तरीय अनुसंधान का सटीक संतुलन रहा है।

इन पृष्ठों में, आप निरंतर सीखने के प्रति हमारी प्रतिबद्धता की झलक पाएंगे। विभिन्न विकास कार्यक्रमों और कार्यशालाओं के माध्यम से हम स्वयं को तकनीक के क्षेत्र में अग्रणी बनाए रखने का प्रयास करते हैं। आधारभूत इंडक्शन प्रोग्राम के माध्यम से नई प्रतिभाओं का स्वागत करने से लेकर, पीएचडी डिफेंस में शैक्षणिक उपलब्धि के शिखर को छूने तक, यह अंक हमारे विभागीय जीवन के हर पहलू को दर्शाता है। गुणवत्तापूर्ण अनुसंधान और प्रकाशनों पर हमारा ध्यान हमारी प्रगति का आधार बना हुआ है, जो हमारे संकाय और छात्रों की बौद्धिक गहराई को प्रदर्शित करता है।

यह प्रकाशन हमारे निदेशक, प्रो. मणिकांत पासवान के दृष्टिकोण और सहयोग के बिना संभव नहीं होता, जिनका नेतृत्व हमें उत्कृष्टता की ओर प्रेरित करता है। हम अपने विभागाध्यक्ष, प्रो. शंकर सिंह के निरंतर मार्गदर्शन और इन महत्वपूर्ण पड़ावों को दर्ज करने के लिए हमें रचनात्मक स्वतंत्रता प्रदान करने के लिए भी उनके अत्यंत आभारी हैं।

मैं संपादकीय टीम के उन सदस्यों की कड़ी मेहनत की भी सराहना करता हूँ जिन्होंने इस अंक को संकलित करने के लिए पर्दे के पीछे काम किया। अंत में, अपनी उपलब्धियों और अंतर्दृष्टि साझा करने के लिए सभी योगदानकर्ताओं को हार्दिक धन्यवाद। हमें आशा है कि यह अंक हमारे विभाग की मूल भावना को समझने में सहायक सिद्ध होगा।

विवेक कुमार

डॉ. विवेक कुमार
संपादक, मेक-टाइम्स (MechTimes)
यांत्रिक अभियांत्रिकी विभाग
एस.एल.आई.ई.टी. लोंगोवाल

Faculty Development Programs (FDP)

One-week Faculty Development Program (FDP) on "2D Graphics for Scientific Reporting – 2025 (2DGSR-2025)"

The Department of Mechanical Engineering, **Sant Longowal Institute of Engineering and Technology (SLIET), Longowal**, successfully organized a one-week **self-sponsored Short-Term Course (STC)** titled "**2D Graphics for Scientific Reporting – 2025 (2DGSR-2025)**" from 7th July to 11th July 2025.

The primary objective of the program was to enhance **scientific visualization skills** and promote the effective use of **2D graphical representations** for high-quality scientific reporting among researchers and academicians. The FDP focused on improving clarity, accuracy, and presentation standards in research publications.

The program was chaired by **Prof. Shankar Singh**, Head of the Department of Mechanical & Civil Engineering, SLIET. The FDP was efficiently coordinated by **Dr. Sunil Kumar, Dr. Surinder Kumar, and Dr. Sumit Kumar**. The technical sessions covered hands-on training on widely used tools such as **Mendeley, MS Office, R Software, AutoCAD, and Origin**, enabling participants to develop practical skills for scientific documentation and data visualization.

A significant number of participants from diverse backgrounds, including **faculty members, industry professionals, and research scholars**, attended the program, making it highly interactive and multidisciplinary.

The **valedictory session** was graced by **Prof. Mani Kant Paswan, Hon'ble Director, SLIET**, who appreciated the relevance and contemporary importance of the course. He commended the organizing team for successfully conducting a highly informative and impactful FDP and encouraged the continuation of such skill-oriented academic initiatives.



One Week FDP on “Advancements in Smart Manufacturing and Robotics: Enabling Industry 5.0 using AI (ASMR5.0–2025)”

The Department of Mechanical Engineering, Sant Longowal Institute of Engineering and Technology (SLIET), Longowal, successfully organized a one-week Faculty Development Program (FDP) titled “Advancements in Smart Manufacturing and Robotics: Enabling Industry 5.0 using AI (ASMR5.0–2025)” from 10th November to 14th November 2025.

The five-day program focused on **innovation, digital transformation, and human-centric technologies** aligned with the vision of **Industry 5.0**, with special emphasis on the application of **Artificial Intelligence in smart manufacturing and robotics**.

Shri Praveen Ramdas, the **Chief Guest** of the inaugural session, highlighted the importance of **India-centric innovation** and emphasized the role of **indigenous science and technology** in achieving self-reliance and global competitiveness. **Prof. Shankar Singh**, Head of the Department, acknowledged the support of the FDP sponsor and underscored the transformative role of **AI in modern manufacturing systems**.

The FDP was effectively coordinated by **Dr. Harish Kumar Arya, Er. Lalit Ahuja, and Dr. Yogesh Verma**.

Participants from more than **20 premier institutions** across the country attended the program. The technical sessions covered emerging areas such as **Robotics, Structural Optimization, Additive Manufacturing, and AI/ML-based intelligent systems**, making the FDP highly enriching and interdisciplinary.



One-Week FDP on “Smart Composite Materials: Technologies and Applications (SCMTA-2025)”

The Department of Mechanical Engineering, SLIET Longowal, organized a one-week Faculty Development Programme (FDP) on “Smart Composite Materials: Technologies and Applications (SCMTA-2025)” from 22nd to 26th December 2025. The FDP covered smart materials, 3D printing, AI/ML integration, and interdisciplinary research, with a strong focus on innovation and nation-building.

Prof. Mani Kant Paswan, Director & Patron, appreciated the efforts of Prof. Shankar Singh, Chairperson, and the FDP Coordinators Dr. Rakesh Kumar, Dr. Mohd. Majid, and Er. Divesh Bharti. Prof. A. S. Shahi, Dean (Academics), highlighted the industrial relevance and future potential of smart composite materials.

The programme featured 13 technical sessions delivered by 4 international and 6 national experts, with active participation from 57 participants representing universities, institutes, colleges, and industry. Interactive sessions, hands-on demonstrations, and Q&A discussions conducted in hybrid mode significantly enriched the learning experience.



Workshops Organized

Two-day workshop on “Statistical Analysis in Engineering with R”

The **Departments of Mathematics and Mechanical Engineering, SLIET Longowal**, jointly organized a **two-day workshop on “Statistical Analysis in Engineering with R”** from **July 18th – 19th, 2025**, in **hybrid mode**. The program focused on statistical analysis, data visualization, regression modeling, PCA, and simulations using **R software**.

The workshop was held under the leadership of **Prof. Mani Kant Paswan**, Hon’ble Director, SLIET. The event was chaired by **Prof. Shankar Singh**, Head (Mechanical Engineering), and **Prof. J.R. Sharma**, Head (Mathematics). **Prof. A.S. Shahi**, Dean (Academics), and **Prof. R.K. Mishra**, Dean (Alumni & Industrial Relations), addressed the participants.

Special appreciation goes to the Coordinators, **Prof. V.K. Kukreja** and **Prof. Jagtar Singh**, for successful organization. The event highlighted SLIET’s commitment to interdisciplinary learning and research excellence.



One-Week Workshop on “Welding and Simulation”

The Department of Mechanical Engineering, SLIET Longowal, organized a **One-Week Workshop on “Welding and Simulation”** from 1st to 6th September 2025 under the banner of the **SLIET Mechanical Engineering Society (SMES)**.

Prof. Mani Kant Paswan, Director, SLIET, graced the occasion as Patron and Chief Guest and highlighted the importance of welding and simulation technologies in modern industry and research. **Prof. Shankar Singh**, Head (Mechanical & Civil Engineering), served as the Chairman, while **Dr. Mohd. Majid** and **Dr. Vivek Kumar**, Associate Professors, Mechanical Department, SLIET Longowal coordinated the program.

Around **50 participants** registered for the workshop. The program effectively combined **hands-on welding practices** with **computer-aided simulation**, supporting **Industry 4.0-oriented learning** and practical skill development.



Student Induction Program (SIP)

Induction Program for ICD and LEET students

The Department of Mechanical Engineering, SLIET Longowal, organized the Student Induction Program (SIP) on 16th July 2025 for newly admitted ICD and LEET students. The program aimed to help students smoothly transition into university life and gain an understanding of the academic environment of the institute.

During the program, students were introduced to the department's vision, values, and academic expectations. The initiative encouraged interaction with faculty members, staff, and fellow students, fostering a supportive and inclusive academic atmosphere. Guided visits to departmental laboratories were also organized to familiarize students with the department's facilities and infrastructure.

The event was successfully supported by the faculty and staff of the Mechanical Engineering Department. Special appreciation is extended to Prof. (Dr.) Shankar Singh, HoD (Mechanical and Civil Engineering), for his leadership and guidance in making the program successful



Induction Program for B.E. Students

On 27th August 2025, the department organized a **Student Induction & Orientation Program** for newly admitted **B.E. Mechanical Engineering students**.

Students were familiarized with the Institute's ethos, culture, facilities, and academic framework. The orientation highlighted departmental resources, research opportunities, and career pathways. A welcome address was delivered by **Prof. Shankar Singh**, HoD (Mechanical & Civil Engineering). **Prof. A.S. Shahi**, Dean (Academics), emphasized discipline, punctuality, and regular attendance.

Students were taken on a **campus and departmental tour** to explore laboratories and infrastructure. The program marked the beginning of a purposeful academic journey for the new students.



SLIET Quality Publication Award (SQPA)

On 14th August 2025, Mr. Ranbir Singh Rooprai, Ph.D. Research Scholar of the department has been awarded the **SLIET Quality Publication Award (SQPA)** in recognition of his exceptional research contributions. Sincere appreciation is extended to his supervisors, **Dr. Jagtar Singh**, Professor and **Dr. Anuj Bansal**, Assistant Professor, for their dedicated guidance and support throughout this research journey. The achievement reflects the department's commitment to high-quality research and innovation.



संत लौंगोवाल अभियांत्रिकी एवं प्रौद्योगिकी संस्थान
लौंगोवाल-148106, जिला-संगरूर (पंजाब), भारत
(विश्वविद्यालय समुदाय अधिनियम, 1956 के खंड 3 के तहत मान्य विश्वविद्यालय)
(शिक्षा मंत्रालय, भारत सरकार द्वारा स्थापित)
SANT LONGOWAL INSTITUTE OF ENGINEERING AND TECHNOLOGY
LONGOWAL-148 106, DISTT. SANGRUR (PUNJAB), INDIA
(Deemed-to-be-University Under Section 3 of UGC Act, 1956)
(Established by : Ministry of Education, Govt. of India)
www.sliet.ac.in

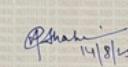
संस्था सं/Ref. No. SLIET/AS/ Ph. D. /4089 दिनांक /DATE: 14-08-2025

CERTIFICATE OF APPRECIATION

Under the SLIET Quality Publication Award (SQPA) scheme, the certificate of appreciation is hereby given to Mr. Ranbir Singh Rooprai, Ph.D. Research Scholar, bearing Regn. No.PME 2116, Department of Mechanical Engineering, for the publication of the following research papers in Web of Sciences (WoS) journals with an impact factor of one or above, in addition to the mandatory requirement of two research papers as per the detail given below.

S. No.	Title of Research Papers	Name of Journal
1	Investigating wear performance of EN8 steel clad with AISI316 steel using the WAAM-CMT process	Journal of Mechanical Engineering Science

The Institute congratulates and appreciates for the outstanding achievement made by him as Research Scholar and by his Supervisor(s), Dr. Jagtar Singh and Dr. Anuj Bansal.


Prof. A.S. Shahi
Dean (Academics)

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Longowal, Distt. Sangrur-148106 (Punjab), India, Phone No. : +91-1672-280057, 253100 (Director), 253115 (Registrar) Fax No. : +91-1672-280057

PhD Defenses

- **Mr. Shrikant Bhardwaj** successfully defended his Ph.D. research thesis on **15th September 2025**, on *"Experimental Study of Oxy-Hydrogen Gas (HHO) Production Utilizing Solar Energy and Its Effect on Performance of SI Engine"*. His research Supervisors were **Dr. Kulwant Singh** (ME, SLIET) and **Dr. Arvind Jayant** (MAE, IGDTUW, Delhi) and his thesis was examined by **Dr. M. Emran Khan**, Jamia Millia Islamia, New Delhi in online mode.



- **Mr. Ranbir Singh Roprai** defended his research thesis on **30th October 2025**, on *"Wear Behaviour of AISI 316 and Inconel 625 Based Claddings Developed by Wire Arc Additive Manufacturing on EN-8 Steel."* He was Supervised by **Dr. Jagtar Singh** and **Dr. Anuj Bansal**, and evaluated by **Prof. Rakesh Sehgal**, NIT Hamirpur.



Expert Academic Visit by Prof. Hui Lin Ong

Prof. Hui Lin Ong, University of Malaysia, Perlis, visited the **Mechanical & Civil Engineering Department** at SLIET Longowal on **29th September 2025**.

The visit was part of her recent expert talk at the Institute and included a tour of departmental facilities. Prof. Hui shared her research on **Nanotechnology and Cellulose Extraction from Sugarcane & Paddy**. She also discussed applications of **Nanomaterials** and advanced monitoring and characterization tools.

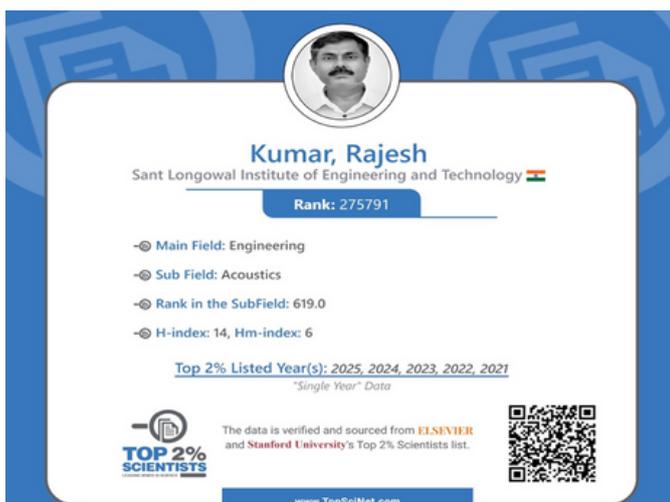
The session was attended by **Prof. Shankar Singh (HoD)**, **Dr. A.S. Shahi**, **Dr. A.S. Arora**, **Prof. Surita Maini**, and other faculty members. Faculty and students actively participated in discussions, enriching the session.



Faculty Achievements

- The Mechanical Engineering Department, SLIET Longowal, proudly announces that **Dr. Rajesh Kumar** (Professor) and **Dr. Anil Kumar Singla** (Associate Professor) have been featured in the **Career-Long Top 2% Scientists List (Stanford University & Elsevier, 2025)**.

	Sant Longowal Institute of Engineering and Technology, Longowal (Punjab) Department of Mechanical Engineering
Top 2% Scientists list (Stanford University & Elsevier, 2025)	
	
Prof. Rajesh Kumar	Dr Anil Kumar Singla



Kumar, Rajesh
Sant Longowal Institute of Engineering and Technology 

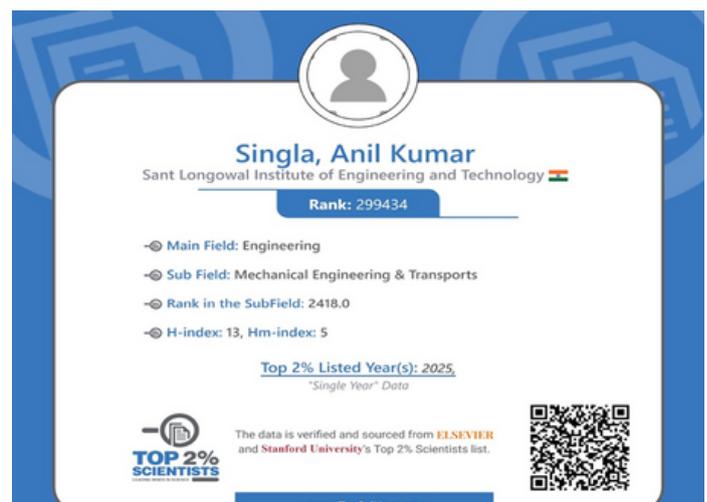
Rank: 275791

- ☉ Main Field: Engineering
- ☉ Sub Field: Acoustics
- ☉ Rank in the SubField: 619.0
- ☉ H-index: 14, Hm-index: 6

Top 2% Listed Year(s): 2025, 2024, 2023, 2022, 2021
"Single Year" Data

 The data is verified and sourced from **ELSEVIER** and **Stanford University's** Top 2% Scientists list. 

www.TopSciNet.com



Singla, Anil Kumar
Sant Longowal Institute of Engineering and Technology 

Rank: 299434

- ☉ Main Field: Engineering
- ☉ Sub Field: Mechanical Engineering & Transports
- ☉ Rank in the SubField: 2418.0
- ☉ H-index: 13, Hm-index: 5

Top 2% Listed Year(s): 2025
"Single Year" Data

 The data is verified and sourced from **ELSEVIER** and **Stanford University's** Top 2% Scientists list. 

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- Dr. Sumit Kumar (AP, ME), Dr. Vivek Kumar (ASP, ME), Dr. Surinder Kumar (AP, ME), and Dr. Sunil Kumar (ASP, ME) have been granted a design patent titled “Retrofit Attachment for Conversion of Bicycle to E-Cycle” on 04 July 2025. The patent also includes students Karan Singh, Gurdeep Singh, Harshpreet Singh, and Ritik Bansal as co-inventors. The innovation focuses on promoting sustainable and affordable electric mobility through a practical retrofit solution.

Congratulations
to Our Inventors on the grant of a Design Patent!

Sant Longowal Institute of Engineering and Technology
(Deemed-to-be-University, under MoE, Govt. of India)
Sangrur, Punjab-148106

DEPARTMENT OF MECHANICAL ENGINEERING

RETROFIT ATTACHMENT FOR CONVERSION OF BICYCLE TO E-CYCLE
(Design No: 464625-001) (Date of Grant: Dec 05, 2025)

INVENTORS

Dr. Vivek Kumar, ASP, Mech. Engg. Deptt SLIET Longowal
Dr. Sunil Kumar, ASP, Mech. Engg. Deptt SLIET Longowal
Dr. Sumit Kumar, A.P., Mech. Engg. Deptt SLIET Longowal
Dr. Surinder Kumar, A.P., Mech. Engg. Deptt SLIET Longowal

BTech Students: Mr. Karan Singh
Mr. Gurdeep Singh
Mr. Harshpreet Singh
Mr. Ritik Bansal

Abstract: This patent features a universally compatible retrofit attachment that transforms regular bicycles into e-cycles. Designed for maximum accessibility, the attachment requires no trained technician and can be quickly fitted by any user regardless of technical expertise. By supporting various bicycle designs and enabling “do-it-yourself” installation, this product significantly lowers the cost of acquiring an e-cycle, promotes the reuse of existing assets, and offers a sustainable solution to reduce urban traffic congestion.

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- Dr. Sumit Kumar (AP, ME), Dr. Vivek Kumar (ASP, ME), Dr. Surinder Kumar (AP, ME), and Dr. Sunil Kumar (ASP, ME) have been granted a design patent titled “Solar Powered Grass Cutter” on 04 July 2025. The patent also lists students Aditya Raj, Adarsh Kumar, Ankit Kumar, and Rudra Kasoudhan as co-inventors. The innovation aims to promote eco-friendly and cost-effective lawn maintenance using renewable solar energy.

Congratulations
to Our Inventors on the grant of a Design Patent!

Sant Longowal Institute of Engineering and Technology
(Deemed-to-be-University, under MoE, Govt. of India)
Sangrur, Punjab-148106

DEPARTMENT OF MECHANICAL ENGINEERING

AUTONOMOUS SOLAR GRASS CUTTER
(Design No: 461411-001) (Date of Grant: Oct 06, 2025)

INVENTORS

Dr. Vivek Kumarr, ASP, Mech. Engg. Deptt SLIET Longowal
Dr. Sunil Kumar, ASP, Mech. Engg. Deptt SLIET Longowal
Dr. Sumit Kumar, A.P., Mech. Engg. Deptt SLIET Longowal
Dr. Surinder Kumar, A.P., Mech. Engg. Deptt SLIET Longowal

BTech Students: Mr. Aditya Raj
Mr. Adarsh Kumar
Mr. Ankit Kumar
Mr. Rudra Kasoudhan

Abstract: This patent features a self-sustaining, robotic system for zero-emission landscape maintenance. By integrating solar photovoltaic energy with autonomous navigation, the device provides a labor-saving and fossil-fuel-free solution for green space management.

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Annual Academic Audit 2024–25

On **4th November 2025**, the **Department of Mechanical Engineering, SLIET Longowal**, successfully conducted the **Annual Academic Audit 2024–25**. The audit evaluated **academic performance, research quality, and departmental progress**.

It was convened by **Prof. Shankar Singh, HoD (Mechanical & Civil Engineering)** under the guidance of **Prof. Mani Kant Paswan, Director, SLIET**. The Audit Committee included **internal members** and **Prof. Pulak Mohan Pandey, IIT Delhi, as External Expert**. Faculty and staff contributed course files, documents, and support throughout the audit process. The department achieved an **overall score of over 80%**, reflecting strong academic standards.



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4. Rooprai, R.S., Singh, V., **Singh, J., Bansal, A., Singla, A.K.** and Khanna, N., 2025, September. Advanced SS316-VC Claddings on EN8 Steel Using Wire Arc Additive Manufacturing-Cold Metal Transfer (WAAM-CMT) for Corrosion Resistance in Tillage Tools. In *International Mechanical Engineering Congress and Exposition-India* (Vol. 89138, p. V001T01A019). American Society of Mechanical Engineers.
5. Jha, S., Singh, V., **Bansal, A., Singh, J., Singla, A.K.**, Kumar, V. and Goyal, D.K., 2025. Characterization of RF-Sputtered ZnO Thin Film Coatings on Aluminum (Al6061): Microstructure, Wettability, Cavitation, and Corrosion Analysis. *Journal of Molecular and Engineering Materials*, 13(01), p.2440022.
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12. Rooprai, R.S., **Bansal, A., Singh, J., Singla, A.K.,** Singh, V. and Singh, H., 2025. Investigate the Dry Abrasion Behavior of AISI316 Clads on 080M40 Steel Using a Wire Arc Additive Manufacturing Process. *Surface Review and Letters*.
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23. Mudgal, D., Gupta, P., Ahuja, L., Singh, A., Mittal, S., Sharma, V. and Pandey, G., 2025. Surface engineering for high-temperature applications: stellite 6 coatings for improving the oxidation and hot corrosion resistance of t91 steel. *Industrial Lubrication and Tribology*.
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