Annual Report

2023-24

THAPAR
INSTITUTE OF
ENGINEERING
& TECHNOLOGY

Patiala, India

Contents

1956
TIET & TPC Founded by Mr. Karam Chand Thapar

1985
Deemed University

2007
Management Programs

2011
Started PG Science Program

2013
Establishment of Derabassi Campus-LMTSM

2020
Started Thapar School of Liberal Arts & Sciences-TSLAS

2024
Thapar School of Advanced AI and Data Science

GAUTAM THAPAR
President

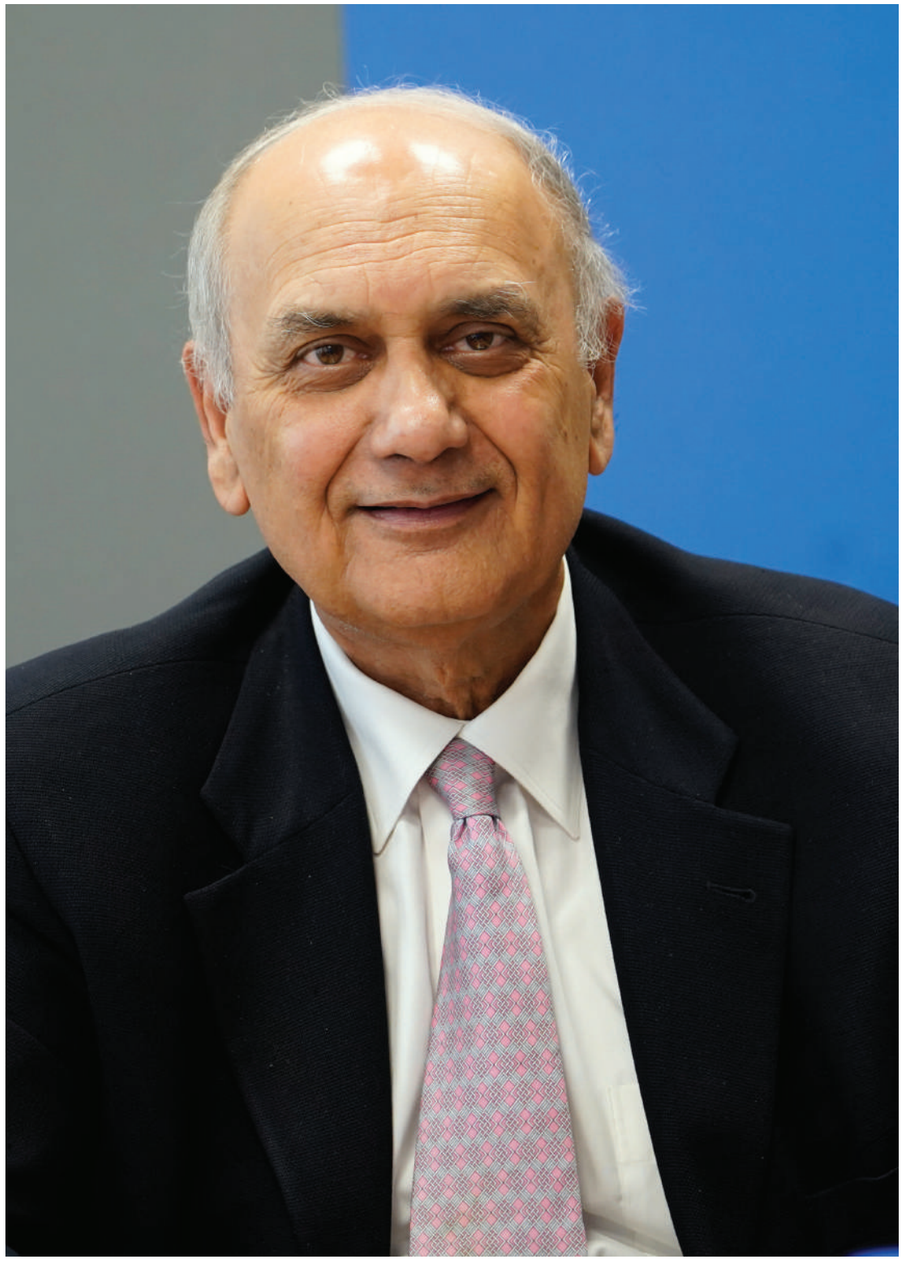
President's message

It is my pleasure to present the Annual Report for 2023-24 for Thapar Institute of Engineering and Technology (TIET). As we reflect on the past year, we celebrate the resilience, innovation, and steadfast dedication of our students, faculty, and staff in furthering our mission.

This year, we proudly launched the Thapar School of Advanced AI and Data Science, marking a significant enhancement to our computer science offerings in general and AI in particular. This initiative positions TIET at the forefront of AI and Data Science, emphasizing sustainability, equity, and global impact.

TIET is not merely an educational institution; we are the architects of careers, the builders of future leaders, and the catalysts for innovation. With 68 years of history rooted in excellence and adaptability, we have achieved remarkable milestones. Central to our mission is our commitment to serving both local and global communities. Our strengthened partnerships with esteemed institutions such as the University of Queensland, University of New South Wales, and Virginia Tech have fostered valuable knowledge exchange and collaborative research.

We remain devoted to excellence in teaching, research, and community engagement. While the future presents both challenges and opportunities, I am confident that the collective strength of our community will empower us to lead with purpose and integrity.



RAJEEV R VEDERAH
Chairman, Board of Governors

Chairman's message

The past year fills me with a sense of pride and accomplishment. The dedication and hard work of our entire community of faculty, students and staff is reflected in the growth and achievements of the institute. The Board of Governors stands with the commitment of our community to fly high in higher education.

We are focused on creating a vibrant campus, do groundbreaking research, and build strong partnerships with industry and academia nationally and internationally. These efforts have materialized our reputation as a leading institution in India and Globally.

Last year the Thapar School of Advanced AI and Data Science was established in collaboration with NVIDIA. This new school is a testament to our strategic partnership with NVIDIA, with a promise to shape the future of the institute in the fast emerging world of data science and AI. The dedication and passion of our faculty and staff made it possible to realize this dream project. I am confident that the school will become one of the leading places to do cutting edge research in the country.

I am excited that we will continue to push our boundaries of innovation in research, teaching, and community engagement. The Center of Excellences and our international collaborations are and will play a crucial role in equipping our students and faculty with the skills they need to succeed in today's global landscape.

The institute is well-positioned to build on its legacy of excellence and make a mark on the global stage. We're committed to embrace new opportunities and challenges, and I'm excited to see the bright future Thapar Institute holds.

Thank you.

PROF. PADMAKUMAR NAIR
Director

Director's message

I am pleased to present the 2023 - 2024 Annual Report for Thapar Institute of Engineering & Technology (TIET).

Founded in 1956, TIET stands as one of India's premier institutions, offering undergraduate, postgraduate, and doctoral programs across diverse fields of engineering, sciences, management, and liberal arts. The institute boasts a lush 250-acre campus in Patiala, complemented by a 28-acre School of Management campus near Chandigarh. TIET consistently ranks among India's top 30 institutions, according to the 2024 NIRF rankings, and holds accreditation from NBA and ABET (under the Washington Accord). It also features in prestigious global rankings by Times Higher Education and QS.

We have seen tremendous growth this year, with significant achievements driven by the commitment of our faculty, students, and staff. TIET's vision for the future, its strong leadership, and its robust alumni network are key drivers in delivering world-class education. Our esteemed collaborations with innovative initiatives such as the one with NVIDIA to establish Thapar School of Advanced AI & Data Science (TSAAI) highlight our forward-thinking approach. We are bridging the gap in AI expertise and fueling cutting-edge research and innovation.

TIET has also established four research chairs in global partnership with Virginia Tech, Tel Aviv University, and the University of Queensland, with ongoing efforts to create another Chair in Quantum Computing with Trinity College Dublin. These partnerships are enhancing our research capabilities and fostering a vibrant academic culture.

Our commitment to industry-academia collaboration ensures that our students are industry-ready, with excellent internship opportunities and skill development programs. TIET's diverse campus community offers a holistic environment for academic and personal growth, supported by a wealth of activities, resources, and social engagement.

Looking ahead, TIET remains dedicated to excellence, sustainability, and making a global impact, and it is confident in its ability to build on its proud legacy.

About TIET

VISION

To be recognized as a leader committed to excellence in higher education, research and innovation that meets the aspirations of the global community.

CORE VALUES

Excellence

Integrity

Accountability

Transparency

Diversity

Academic excellence

TEACHING & LEARNING

The quality of technical education and the employability of engineering graduates have been widely debated in both academia and industry. In recent years, TIET has launched several key initiatives to strengthen technical skills, promote critical thinking, and develop a mindset geared toward successful careers in engineering and technology.

TIET is among the few leading institutions in India that practice outcome-based education, offering students the flexibility to engage in cross-functional and multidisciplinary design projects and assignments. We actively monitor the achievement of course learning outcomes and take corrective measures as needed to ensure the desired results are achieved. Faculty members are encouraged to incorporate cutting-edge research from their respective domains into teaching.

ACADEMIC UNITS OF THE INSTITUTE

The Institute comprises of various academic units, including Departments, Schools, and Centres. The Departments and Schools are responsible for conducting undergraduate, postgraduate, and doctoral programs in relevant engineering and technological disciplines. The Centres function as special interdisciplinary research units that serve the University as a whole.

DEPARTMENTS

Biotechnology
Civil Engineering
Chemical Engineering
Chemistry & Biochemistry
Computer Science & Engineering
Energy and Environment
Electrical & Instrumentation Engineering
Electronics & Communication Engineering
Mathematics
Mechanical Engineering
Physics & Materials Science

SCHOOLS

Thapar School of Liberal Arts & Sciences
LM Thapar School of Management
Humanities & Social Sciences

CENTRES

Thapar Innovate
Central Workshop
Nava Nalanda Central Library
Experiential Learning Centre (ELC)
Center of Information Technology and Management (CITM)
Thapar Learn
Centre of Excellence in Emerging Materials
Centre for Training & Development (CTD)
Centre for Industrial Liaison & Placement (CILP)
Science & Technology Entrepreneur's Park (STEP)
TIFAC CORE In Agro Industrial Biotechnology

RANKINGS & ACCREDITATIONS

Thapar Institute of Engineering and Technology (TIET) continues to excel in both global and Indian rankings, particularly in the subject rankings for computer science and engineering. In the 2024 NIRF Rankings, TIET maintained its strong national standing, securing the 29th position among the top engineering institutions in India. The institute also ranked 29th among all Indian universities, 39th in research, 44th in management, and 43rd in the overall category.

On the global stage, TIET was ranked in the "601-800" bracket worldwide in the Times Higher Education (THE) World University Rankings 2024 and placed in the '201-250' bracket in THE Asia Rankings 2024. Additionally, TIET's engineering programs were ranked in the "501-600" bracket, while its computer science program was placed in the "401-500" bracket in THE world university rankings in 2024. In the QS World University Rankings 2024, TIET was ranked in the "951-1000" bracket globally.

The institute's eligible undergraduate programs are accredited by the National Board of Accreditation (NBA) and ABET. TIET has been accredited with an "A+" grade by the National Assessment and Accreditation Council (NAAC) since March 2019, valid for five years.

NAAC A+
Accredited A+ by NAAC*

NBA
Accredited Programs

#29
Engineering Category

#29
University Category

#39
Research Category

#44
Management Category

601-800
Bracket in THE World University Rankings

201-250
THE Asia Ranking

401-500
Computer Science 2024 by Subject (Global)

501-600
Engineering 2024 by Subject (Global)

ABET
Accredited Programs

451-500
Computer Science and Information Systems 2024

101-150
Telecommunication Engg

401-500
Electronics & Electrical Engg

201-300
Computer Sc and Engg

* Currently TIET is under going NAAC re-accreditation process for fourth cycle.

Year at a glance

A YEAR OF GROWTH AND INNOVATION

This past year, we strengthened our global footprint and continued our journey of academic and research excellence. We welcomed distinguished delegations from the University of Queensland (Australia), George Mason University (USA), Alma College (USA), University of New South Wales (Australia), and Temple University (Japan). The visits helped us extend our intellectual dialogues, deepened our partnerships, and enriched the academic culture on campus.

A key achievement was the launch of the Center of Excellence in Data Science, created in collaboration with the University of Queensland, Australia, under the leadership of Prof. Tim Miller. The center is set to lead pioneering research in data science, supported by funding from the government, industry, and the institute seed funds. It will play a critical role in advancing the cutting edge research in the field.

We forged a strategic partnership with NVIDIA, a global leader in AI and accelerated computing. This collaboration will give our students and faculty access to cutting-edge technologies in high-performance computing and artificial intelligence.

On the academic front, the institute achieved another milestone with the successful accreditation of our Electronics and Computer Engineering, Electronics (Instrumentation and Control), and MBA programs by the National Board of Accreditation. This reassures our commitment to maintaining high academic standards.

Our students shone brightly this year, excelling in multiple hackathons at both national and international levels. Their innovative solutions to real-world challenges highlight the practical application of their knowledge and skills gained at the institute.

Culturally, Thapar Institute continued to thrive, with the annual Saturnalia festival being a highlight. Students, faculty, and staff enjoyed an electrifying performance by celebrated singer Mohit Chauhan, making the event a joyous celebration of our campus spirit. We also organized multiple festivals under various clubs and societies of the institute.

Thapar Institute supports and helps students financially. Financial assistance enables students in need to concentrate on their studies without the burden of financial concerns. The merit-based scholarships serve as a powerful motivator, encouraging academic excellence and rewarding outstanding performance. This year, the institute awarded scholarships totaling Rs. 4803 lakhs, furthering its commitment to empowering students to achieve their full potential.

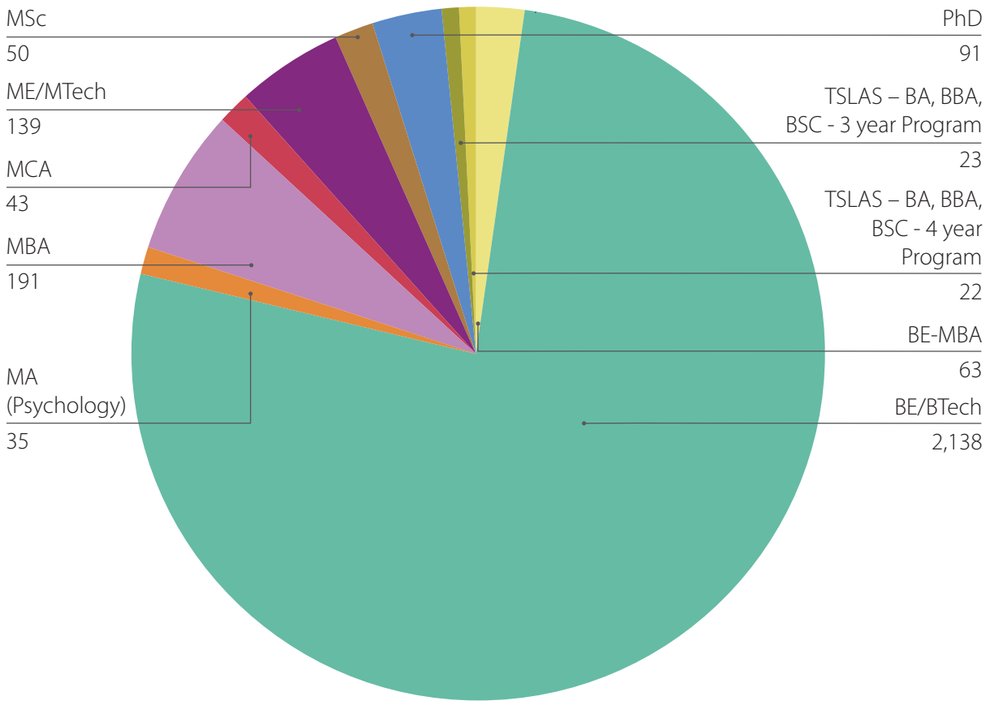
A total of 443 organisations visited our institute for placements and internships. The highest package offered was 55.75 lakhs with an average of 12 lakhs. Many students joined the best universities across the world to extend their educational endeavors.

The institute enrolled 4250 students for Undergraduate, Postgraduate and PhD programs during the current academic year. We have 697 research scholars working on various state of the art problems under various projects and doctoral programs.

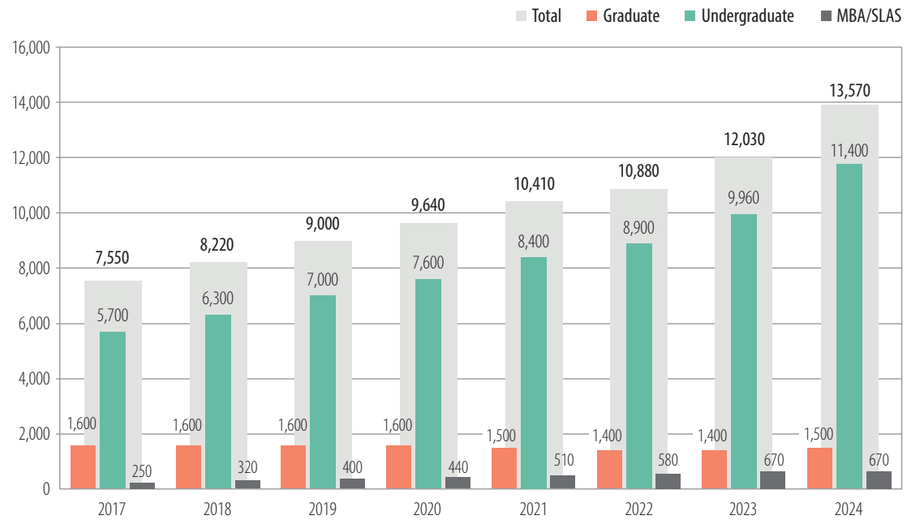
The institute remains committed to providing a dynamic, engaging environment for students to grow, encouraging extracurricular activities and fostering a strong sense of community.

Numbers at a glance

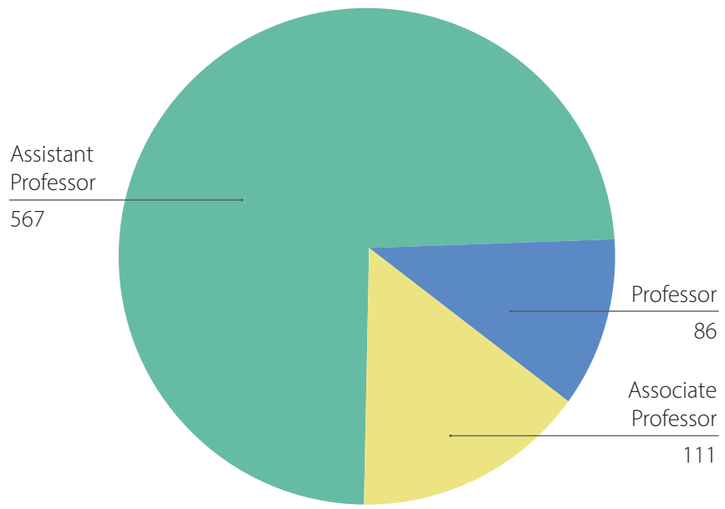
GRADUATING STUDENTS



TIET ENROLLMENT GROWTH



FACULTY



Redefining education with AI

Thapar Institute of Engineering & Technology (TIET) redefines Higher Education in India by Establishing AI-enabled University in technical collaboration with NVIDIA

Thapar Institute of Engineering & Technology (TIET) signed an MOU and collaboration with NVIDIA to establish the Thapar School of Advanced AI & Data Science (TSAAI), with technical support from the NVIDIA AI University program.

Artificial Intelligence (AI) continues to revolutionize industries worldwide, driving innovation, reshaping the future of education, and changing lives. Under the Memorandum of Understanding signed between TIET and NVIDIA, TSAAI has been established at TIET's campus, Patiala. This groundbreaking initiative aims to offer a comprehensive range of academic programs, research opportunities and innovation projects to empower both students and faculty with essential AI skills and knowledge. AI has become an integral part of daily life, from navigation systems to facial recognition technologies. However, India faces a significant gap in AI expertise, highlighting the urgent need for skilled professionals in this field.

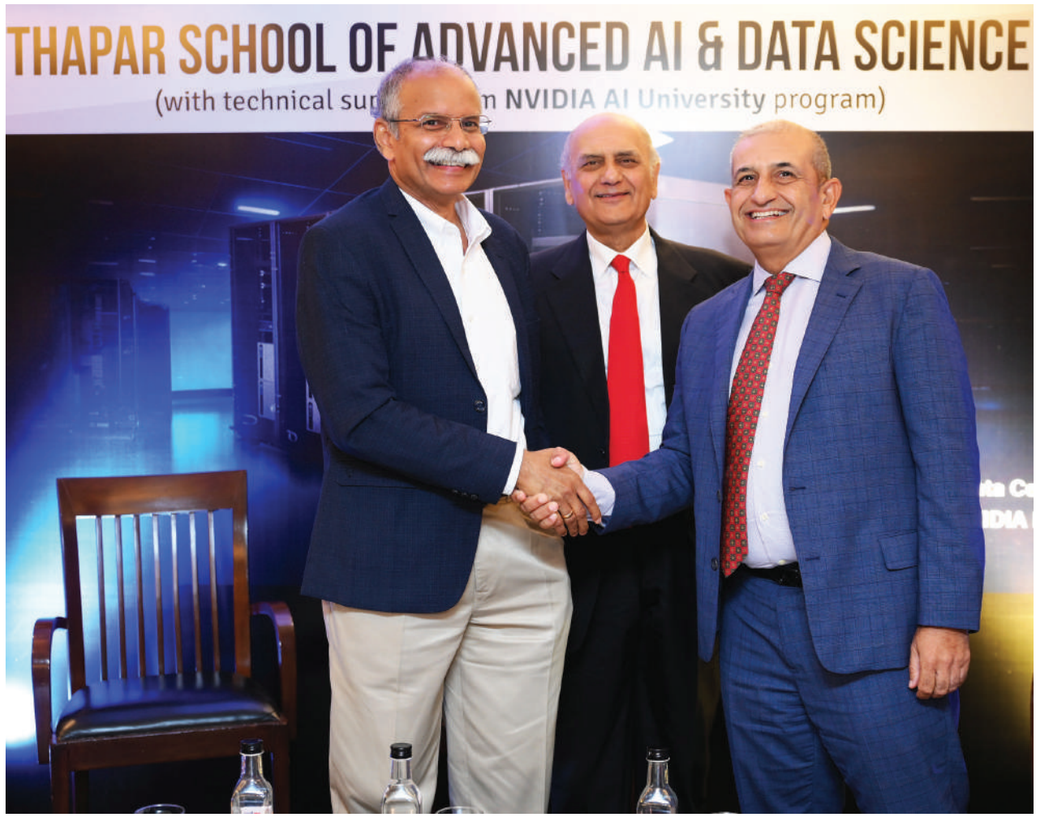
TIET has set up state-of-the-art AI infrastructure leveraging NVIDIA DGX systems with NVIDIA H100 Tensor Core GPUs, NVIDIA A100 Tensor Core GPUs and the NVIDIA AI Enterprise software platform for the development and deployment of generative AI. This dedicated data centre offers 227 petaflops of AIperformance with nearly 8 terabytes of GPU memory. Apart from core accelerated computing infrastructure, TIET has set up edge computing infrastructure with 500 Jetson Nano developer kits to build up the startup ecosystem, taking leaps forward to turn graduates into job creators rather than job seekers.

This AI university program aims to offer a comprehensive range of courses, labs, research opportunities and innovation projects to empower both students and faculty with essential AI skills and knowledge. During 2024-2025 academic year, the infrastructure is ready to support a full undergraduate AI degree program, AI mandatory/elective courses across all disciplines, technical training for faculty and staff, research collaborations and establishment of an AI startup ecosystem powered by NVIDIA edge computing. Within a span of 2-4 years, TIET will make sure any student who is graduating will be "AI literate" by making required curriculum changes and additional requirements. First on the block is to initiate the Thapar Digital Twin project, followed by a number of mega interdisciplinary projects in areas ranging from food security, urban planning, healthcare, cybersecurity to robotics and more.

Key highlights of the Thapar School of Advanced AI & Data Science (TSAAI)

1. Academics

- A new undergraduate engineering program in AI (B.E. in Artificial Intelligence and Machine Learning) focused on building deep AI skills over four years.



- Offer AI elective courses across all programs to ensure all students are AI literate.
- Launch a Master's Program in AI, ML, and DS targeting working professionals in 2025.
- Provide professional development courses for industry professionals seeking AI training.
- Irrespective of the program, all students of TIET will receive nine credits of AI training

2. Faculty and student training

- Train identified faculty in the NVIDIA Deep Learning Institute (DLI) Ambassador Program
- Conduct DLI workshops for identified students and faculty members.

Empowering people

THE TSLAS VISION

Hans Van Ees
(Honorary Dean & Distinguish Professor, TSLAS)

It is now more than four years since the leadership of the Thapar Institute of Engineering and Technology (TIET) founded the Thapar School of Liberal Arts and Sciences (TSLAS). As a founding dean of a Liberal Arts and Sciences (LAS) college in the Netherlands, I became impressed by their vision for academic education in India and the growth and performance of TIET. Now, it is a great pleasure to further engage with the development of TSLAS. To start TSLAS in Patiala, in the midst of the uncertainty of the pandemic, was a brave and visionary decision, and, most importantly, it characterized the core of what Liberal Arts and Sciences stands for.

Liberal Arts and Sciences education is founded on three pillars: Excellence (1), Collegiate Education (2), and the program content of Liberal Arts and Sciences (3).

First, Excellence refers to the students of LAS, their love of learning, the life of the mind, and, most of all, their commitment to good citizenship.

Second, Collegiate Education refers to the LAS pedagogy—the idea that knowledge is created through interaction, by sharing your thoughts and giving others the opportunity to share theirs. It implies small-scale, intensive teaching, student-centered education, and guiding students in their learning, rather than telling them what they should learn.

Third and finally, the content of Liberal Arts and Sciences centers on the individual's engagement with what Professor Howard Gardner from Harvard has referred to as the reframing of Truth, Beauty, and Goodness. It is the comprehensive combination of Science, Behavior, and Arts, or, in modern terminology, the combination of STEM and non-STEM education. I firmly believe this is the distinctive narrative of Liberal Arts and Sciences.

However, my years in LAS education have made me understand that this combination of Truth, Beauty, and Goodness also resembles the Red Queen—you'll never fully keep up with it. It's a process, not a state, as reflected in the following quote from a student:

"When I came to study LAS, I was uncertain, didn't know what to choose or what to do. Now, at the end of my LAS education, I'm still uncertain, but I've learned to embrace uncertainty."

This is what LAS stands for. Embracing uncertainty, as the TIET leadership did at the moment of the launch of TSLAS, urges you to find new opportunities, make new discoveries, experiment, succeed, fail, and learn from it. LAS allows you to strategize in an uncertain environment, which is the best reason for the existence of TSLAS.

STUDY VISIT OF MARIHE SCHOLARS

Master in Research & Innovation in Higher Education (MARIHE) students at TIET, Patiala

Thapar Institute of Engineering & Technology welcomed eight MARIHE (Master in Research and Innovation in Higher Education) students in September 2024 for the specialization module in Asia. The specialization modules offered at TIET over the duration of two months included Systems in Transition, Insights from Practice, Research-writing workshops, and Cultural immersion activities.

The MARIHE Erasmus Mundus Joint Master Degree program is a prestigious international initiative focusing on Research and Innovation in Higher Education. This program offers students a unique opportunity to engage in advanced studies, research, and practical experiences in higher education systems and policies across the globe. The MARIHE program is jointly conducted by the six partners:

- University for Continuing Education Krems, Austria
- Tampere University, Finland
- Osnabrück University of Applied Sciences Osnabrück, Germany
- Eötvös Loránd University, Hungary
- Thapar Institute of Engineering and Technology, India
- Beijing Normal University, China

One of the standout features of the MARIHE Erasmus program is its international approach. It brings together a diverse community of students, faculty, and experts from different countries and cultural backgrounds. This diversity fosters cross-cultural understanding and enriches the learning experience. Thapar Institute hosts MARIHE students to complete a part of their 3rd semester of the program. Graduates of the MARIHE Erasmus program emerge as highly qualified professionals in the domain of higher education, well-prepared to take on leadership roles in universities, research institutions, government agencies, and international organizations. They are well-versed in the theoretical aspects of higher education and possess practical skills in high demand within the global higher education landscape.

The visit facilitated connections between the MARIHE students and our faculty and students, enabling potential collaborations for future research and projects. These specialization visits for MARIHE students every year are a testament to TIET's commitment to international collaboration and the advancement of higher education.

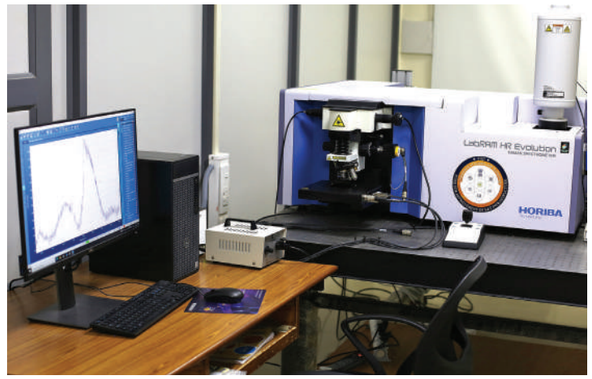
Research excellence

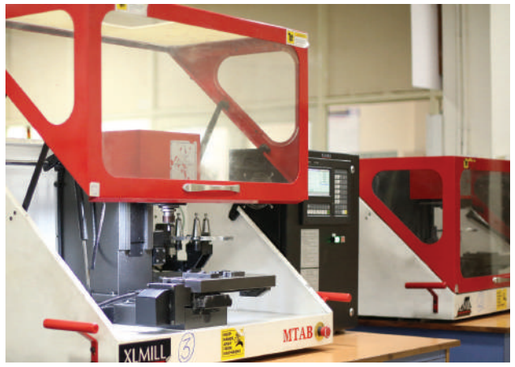
Thapar Institute, with its world class infrastructure and an expertise in scientific and pedagogical research, prepares students to tackle some of the most complex challenges of the real world. Research isn't just a part of what we do-it's at the heart of our mission. Our research projects funded by government agencies and industry partners are not limited to advancing technology but also focus on turning research into real-world impact-whether that's through technology transfer or launching innovative, technology-driven businesses.

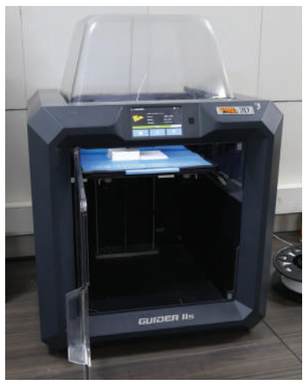
Our students and researchers have access to several centers of excellence. To the existing three Center of Excellence in Emerging materials (with Virginia Tech), Food (with Tel Aviv University and Punjab Agriculture University) and Advanced Manufacturing (with Tel Aviv University) this year we added a new center of Research in Data Science in collaboration with University of Queensland, Australia. We're proud of the collaborations we've built with leading Indian and international institutions. These partnerships, along with faculty exchange programs, bring a dynamic, global perspective to our work.

The core of our institute's philosophy is that original research must be the backbone of education. With state of the art equipment, funded by the government of India and industries, we facilitate and motivate our faculty and research staff for the cutting edge research. We've seen tremendous growth in our research output, making us one of India's leading research-driven institutions. The numbers speak for themselves: the rise in citations, publications, and collaborative work highlights our progress. In 2023 alone, our faculty published over 1400 research papers in refereed journals, and by October 2024, we had already added more than 1070 to that tally.

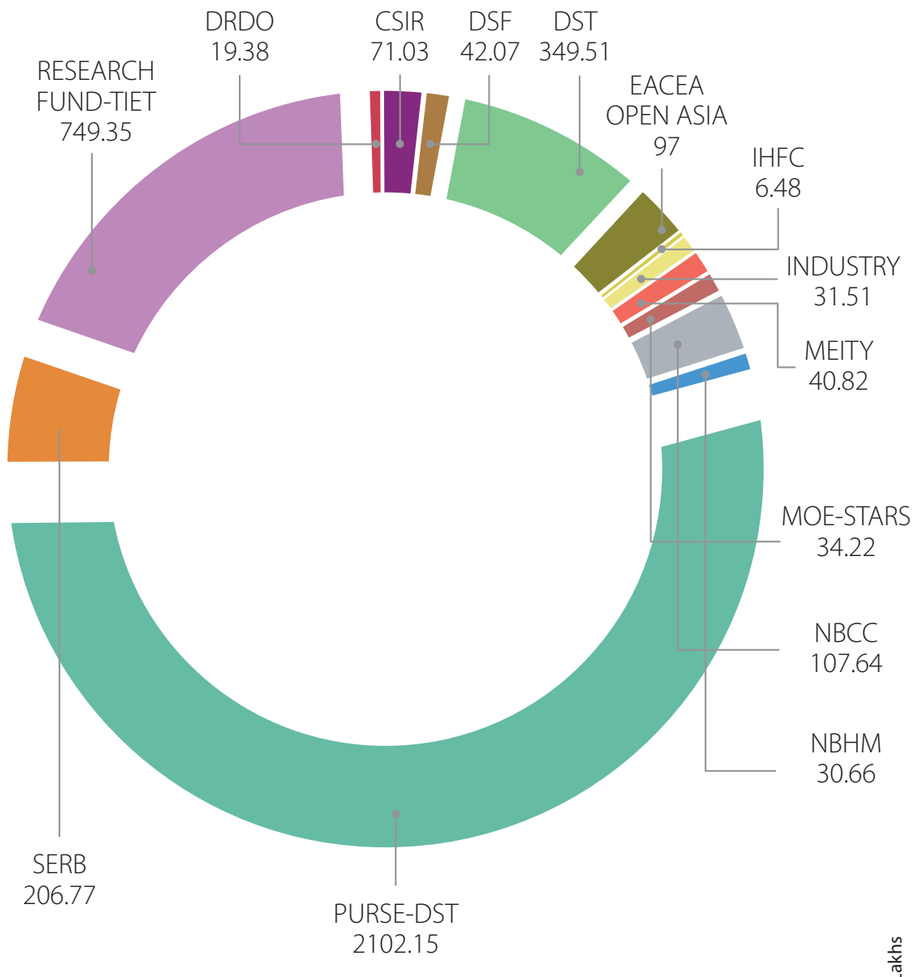
Currently, more than 120 sponsored research projects are in progress, spanning various disciplines. Of those, 36 projects, worth 3140 lakhs, were funded during the 2023-24 academic year by a range of government agencies and industries. This year we highlight three key research projects by Principal Investigators from TIET Prof. Mukesh Singh (Electric Vehicle), Prof. S S Mallick (Powder Technology) and Dr. Sourav Marik (Quantum Materials)





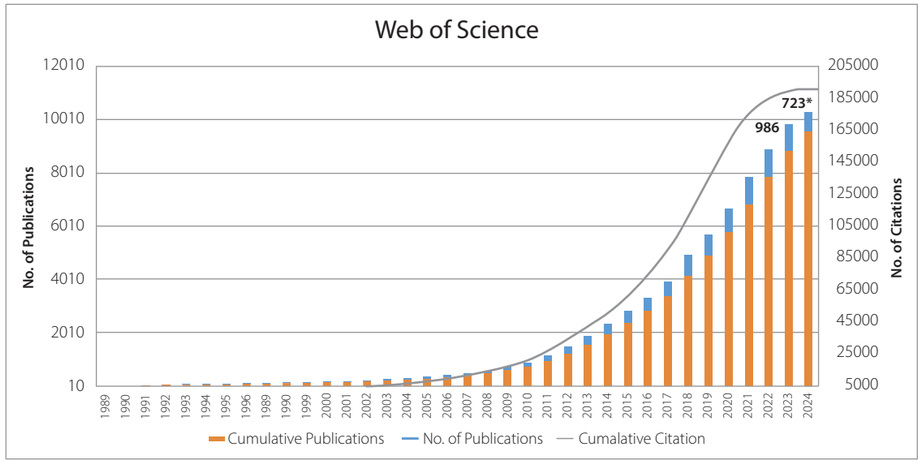


RESEARCH FUNDING

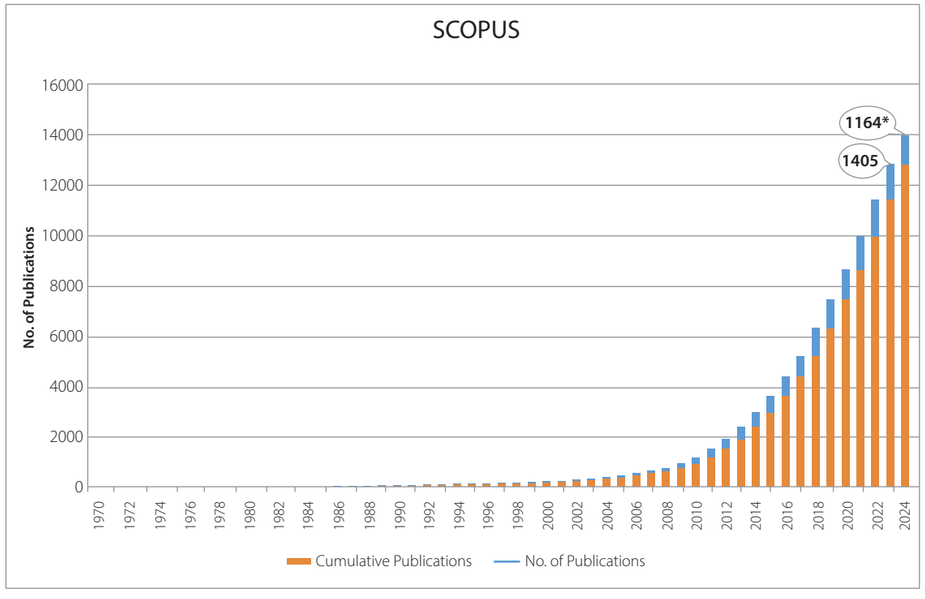


Total Research Funding Rs. 3890 Lakhs

CITATIONS AND PUBLICATIONS



h-Index	Avg. Citation Per Paper	Total Publications	Total Citations
148	19.93	9565	190595



h-Index	Average Citation	Total Publications	Total Citations
171	18.34	13995	257580

*as on September 2024

E-MOBILITY RESEARCH LAB

The E-Mobility Research Lab, established in 2018 under the Department of Electrical and Instrumentation Engineering, is a hub for cutting-edge research in electric vehicle (EV) technologies. Led by Prof. Mukesh Singh, the E-Mobility Research Lab has secured 10 sponsored research projects valued at ₹ 21 crores, with the majority being multi-consortium collaborations. The lab has successfully guided 8 PhD students, 12 Master's students, and completed 15 capstone projects. Currently, 10 research fellows are working on diverse EV-related topics, including Net Metering, Battery Systems, Battery Management Systems (BMS), Power Train Controllers and Onboard Chargers. One of the lab's recent accomplishments is the development of a Vehicle-to-Grid Net Meter at TRL-9, built to EIC and AIS standards. This innovative technology is in the process of being transferred for commercialization and is set to be a unique offering in the global market.

Additionally, the lab has developed a cloud-based smart BMS for real-time health estimation of EV batteries, successfully tested in a running EV.

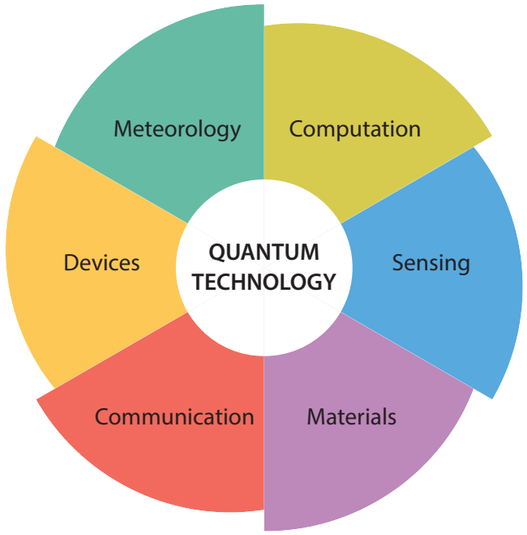
The lab recently received a ₹1.02 crore project from the Department of Science and Technology to develop a universal powertrain controller for Electric Vehicle. Industrial collaborations include partnerships with leading companies like Escorts Tractors, Tata Motors, Idea-Inc, and Numel Solutions. The team operates in an interdisciplinary environment, working with faculty across different domains and maintaining strong research ties with IIT Delhi, IIT Kanpur, IIT Roorkee, and international institutions like Tel Aviv University (Israel), ETS Montreal (Canada), University of Liverpool (UK), and the University of Naples (Italy). This dynamic lab continues to drive innovation in e-mobility, contributing significantly to the advancement of EV technologies both in India and globally.

POWDER TECHNOLOGY LABORATORY

The Powder Technology Laboratory at the Department of Mechanical Engineering has been developed by Prof. S.S.Mallick with the financial support from NTPC, DST, SERB, CSIR, TIET and Rieco Industries Ltd. The laboratory carries out research in characterization, flowability, segregation, mixing, storage and conveying of bulk powders having applications in industries such as power, chemical, mineral, pharmaceutical, food processing, detergent, paint and additive manufacturing, to list a few. The laboratory hosts Asia's largest bulk powder handling research facility of its kind and is equipped with industrial scale pneumatic conveying pilot plant, powder flow property and segregation testers, high powered DEM-CFD coupled powder simulation facilities etc. Some of the ongoing research includes modelling agro-waste utilization as an alternative fuel source in thermal power plants in line with the SAMARTH mission of Government of India and to optimize Sodium-Ion battery material towards cell development addressing the national initiative of developing competitive local alternatives to imported Lithium-Ion batteries. Backed by the comprehensive test facilities, advanced modelling and design tools, the laboratory has provided industrial design and troubleshooting solutions to several organizations of repute, such as NTPC, L&T, TATA Power, Schenck Process, Merrick Industries Inc, Haryana Power Generation (HPGC), Odisa Power Generation (OPGC), Aditya Birla Group, KC Cottrell etc. The laboratory has published nearly 50 SCI papers, carried out 40 industrial research and consulting projects, organized 4 international conferences, 10 industrial training programs and several on-site seminars. Through a STEP-TIET incubated venture, the laboratory has designed, manufactured and supplied powder testers to industries as an affordable solution to imported products, thus addressing the 'Make in India' initiative of the country.

QUANTUM SCIENCE AND TECHNOLOGY AT TIET

Research on quantum science and technology is driving a transformative technological shift by harnessing the principles of quantum mechanics-superposition and entanglement-to solve computational problems that are beyond the capabilities of even the most advanced supercomputers. Over the past decade, significant progress has been made, with companies like IBM and Google developing quantum devices featuring hundreds of quantum bits (qubits). At the Thapar Institute of Engineering and Technology (TIET), a multidisciplinary research team is engaged in cutting-edge research across three key verticals: quantum materials, quantum communication, and quantum computing.



In quantum materials, a major challenge is developing materials that maintain reliable quantum control across varying temperatures and conditions. Our research focuses on the theoretical and experimental investigations of quantum materials, including superconductors, topological insulators, and two-dimensional (2D) materials, which offer promising quantum properties. Superconductors enable zero-resistance current flow, making them essential for energy-efficient quantum circuits. Topological and 2D materials, with their unique quantum behaviors like robust edge conduction and spin-momentum locking, are being optimized for stability and scalability in practical applications (designing qubits).

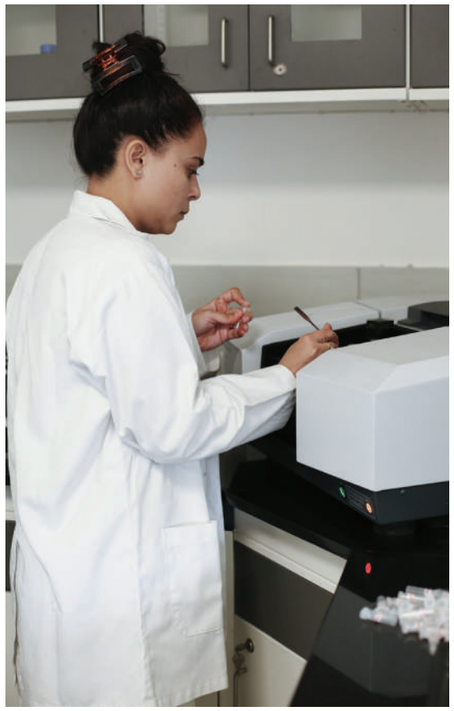
Our efforts in quantum communication focus on creating blockchain-based, secure quantum-optical communication systems. By combining the security of quantum mechanics with blockchain's decentralized transparency, we aim to design highly secure, tamper-resistant networks. Researchers at TIET are developing protocols that utilize quantum entanglement and photon-based communication to build scalable systems that are resistant to both classical and quantum threats.

In quantum computing, we are advancing quantum cryptography using Chua's oscillator, a nonlinear circuit known for chaotic encryption. This novel approach enhances security by introducing chaos-based encryption, making communication systems more resilient to attacks, including those from quantum computers. By integrating Chua's oscillator into cryptographic frameworks, we aim to develop secure, future-proof communication protocols. Further, our quantum computation research team is designing robust quantum key distribution algorithms for secure data sharing between devices over quantum channels.

CENTRE OF EXCELLENCE IN ADVANCED MANUFACTURING

Advanced Manufacturing including 3D printing has been recognised as one of the technologies having the greatest potential of significant economic impact and disruption by 2025. A Center of Excellence in Advanced Manufacturing is being setup in the Patiala campus. This centre aspires to become a national leader in advanced manufacturing and allied research areas, and to offer customized solutions to industry. Prof. Noam Eliaz, Professor, and Dean Faculty of Engineering at Tel Aviv University, Israel is leading the center. In the first phase, a direct energy deposition (DED) based 3D metal printer capable of printing objects of dimensions better than 50 cm in controlled environment is being purchased. The detailed specifications of the printer has been finalized. Technical discussion and demonstration of printing capabilities of systems of two vendors (one in US and one in South Korea) have been completed. The order will be placed soon.

CENTER OF EXCELLENCE IN EMERGING MATERIALS



Center of Excellence in Emerging Materials (CEEMS) has made significant progress since its establishment in July 2019 through a collaboration between Virginia Tech (VT), USA, and Thapar Institute of Engineering and Technology (TIET), India. The center's core mission is to carry out cutting-edge research in the field of next-generation materials. Over the past five years, CEEMS has successfully and consistently grown its project basket and identified four key thematic areas to focus on: 2D materials and polymer composites, cancer detection and treatment, sustainable construction, and sensors. These areas were chosen because of inherent strength in TIET in these areas and provide a research atmosphere to foster growth and achieve national and international recognition.

Each year, CEEMS has made considerable strides in research, infrastructure, and communication. The center has seen an impressive increase in publications, patents, and external grants, CEEMS has adopted an investment approach that focuses on "spiral growth," a model aimed at promoting non-linear and exponential development.

Drawing from its five-year journey, CEEMS 1.0 has gained deep insights into faculty strengths, national needs, and the external funding landscape. Based on these insights, the center has strategically concentrated its resources on specific strengths within each of the thrust areas. Each thematic area now comprises 10-16 faculty members, supported by a large number of Research Fellows (JRFs/SRFs). To further boost research efforts, CEEMS has also recently brought on board eight postdoctoral fellows from prestigious institutions, who will focus on "scieneering" (science and engineering) challenges in their respective domains. It is planned to hire an additional 20 research fellows in the current year. Also, it has been decided to put forward a strategy to give shape to truly transformative ideas, pushing the envelope of science, technology, and societal impact.

To enhance the interaction between faculty and scholars, a ‘CEEMS Open Day’ was held in the Institute on February, 2024. This event showcased the research accomplishments of all CEEMS doctoral and postdoctoral fellows. Going by the coverage by local media and comments from the visitors, the event was a resounding success.

As the center continues to grow, CEEMS 2.0 anticipates an increase in collaborative activities between TIET and VT, paving the way for broader engagement and deeper research ties between the two institutions. This cross-institutional synergy promises to further advance CEEMS' goals and enhance its societal impact.

TIET-TAU-PAU CENTER OF EXCELLENCE IN FOOD SECURITY

Given the increasing world population, the depletion of land, energy, and water resources, and global climate change resulting in extreme and fluctuating weather, achieving sustainable food security is a significant challenge in the coming years.

The centre's vision is to become a leader in sustainable food security while fostering community development. This will be achieved by promoting science and technology relevant to Punjab, India, and the world.

To achieve this goal, the centre employs an interdisciplinary approach to address critical challenges related to food security. It conducts both basic and applied research, studying issues on scales ranging from the macro level to the micro level, from the fields of Punjabi farmers to advanced laboratory research.

The research in the centre is conducted by researchers from TIET, PAU (India), TAU, and ARO (Israel), combining Economy, Biology, Chemistry, and more.

These approaches focus on developing new methodologies to promote the conservation of freshwater resources, utilize alternative irrigation sources like treated wastewater, and improve the precision application of water, fertilizers, and other chemicals. Additionally, the centre aims to design autonomous agricultural machinery, incorporating biomimicry inspired by bats, and integrating advanced sensors to boost agricultural productivity in both field crops and greenhouses. Efforts are also directed toward extending the shelf life of produce to minimize food loss and discovering treatments for specific farm animal diseases.

By implementing these strategies, the center aims to prepare the next generation of scientists and policymakers to lead efforts in advancing global food security.

Nir Ohad
Chair Professor

WORLD TOP 2% SCIENTISTS

Some of the faculty members included among the "WORLD TOP 2% SCIENTISTS" as reported by the Stanford University (USA) and the Elsevier BV, published in 2024.

Recipients with Deputy Director / Chief Academic Officer

Thapar innovate

Thapar innovate was established in 2016 under STEP-TIET with a focus on latest technologies like AI – ML, IT and SaaS, IoT and Embedded Systems, Additive manufacturing, Smart materials, Robotics, Precision Agri-tech and Food security. In 2019, Ministry of Electronics & Information Technology (MeitY), Government of India selected STEP-TIET as Group 2 centre. Thapar Innovate is spearheaded by Prof. Aard Groen, (Ex-Dean, Centre of Entrepreneurship, University of Groningen, Netherlands) and being supported by Dr. Olga Belousova, (University of Gronigen, Netherlands), Ms. Shivani (Chief Innovation Officer), Prof. Ingrid (Amsterdam Univeristy of Applied Sciences, Netehrlands) and Prof. Steve Walsh (Anderson School of Management, University of New Mexico) along with Dr. Karminder Ghumman, Dr. Mandeep Singh, Mr. Aneesh P.G, Mr. Rahul Sharma and Ms. Gurleen Kaur from TIET.

Funds and Startups

67
startups incubated since 2016

150+
Employment created

₹360 Lakhs
have been funded to startups so far

SISF : Three startups have been funded ₹95 Lakhs under Startup India Seed Fund in the last year

1. Kriyate Fitness Pvt. Ltd.	25 Lakhs
2. Eternz Pvt. Ltd.	45 Lakhs
3. Evper Technology Pvt. Ltd.	25 Lakhs

MeiTY TIDE 2.0

- Six startups have been funded
- 47 Lakhs under TIDE 2.0 scheme in the last year

New Initiatives

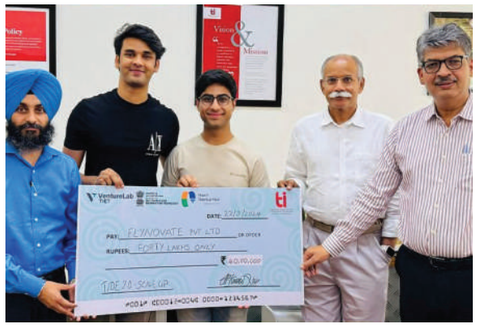
VentureLab TIET

Under the leadership of Prof. Aard Groen, Venture Lab Thapar is excited to launch its flagship entrepreneurship development program this year. Budding entrepreneurs and first-time founders meet and learn from trainers and mentors from various industries and research areas at Venture Lab, Thapar Institute campus, Patiala. This a first of its kind academic-cum-practical program by any Indian University.

Faculty Development Program

A cohort of 18 faculty members from different domains has been identified to train and mentor in the area of Innovation and Entrepreneurship. This will enhance the teaching capability of Thapar Innovate to disseminate Innovation and Entrepreneurship among all students of TIET.

ACHIEVEMENTS



Scaleup grant of Rs. 40 Lakhs

Our startup "Flynovate" clinched the scale up grant from the Ministry of Electronics and IT. Flynovate is working in the area of Drone based solar panel cleaning and condition monitoring.

Recognition

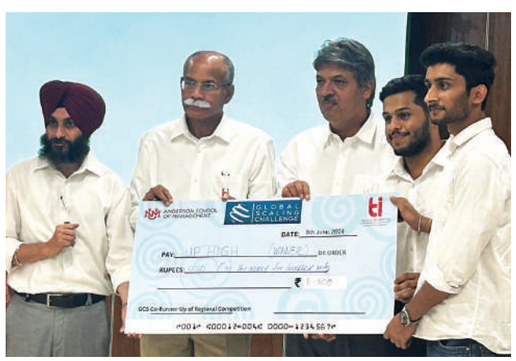
Mr. Gagandeep Singh has been celebrated as Forbes 30 under 30. He is co-founder of the startup MinusZero and recently collaborated with Ashok Leyland for autonomous vehicles.

Award Winners

Global Scaling Challenge 2024 winners. Two team from Thapar institute who were mentored by Thapar Innovate have won the prestigious Global Scaling Challenge 2024 on reginal and global level. Team Uphigh won Gold medal (USD $1500) in the regional level and team ANTRIX won the Bronze medal (USD $1250).

Asia and Ocenica winner : Team UpHigh

Gold Medal - $1500



UpHigh I Thapar Institute of Engineering and Technology

Bronze Medal Winners (TIE)

UNM-1 I University of New Mexico ($1250)

Antriksh I Thapar Institute of Engineering and Technology ($1250)

ACTIVITIES / EVENTS

Founder's meet

Prof. Aard Groen started regular meetings with the founders of startups supported by Thapar Innovate. In the last year five meeting happened in Chandigarh, New Delhi, Mohali, Gurgaon and Patiala.

Venture Lab Weekend by Neil Sheridan

A continuous 52 hours of Ideation, Mentoring, Coaching and Business Pitching. Mr. Neil Sheridan CEO of SVP Inc. USA executed the Venture Lab Weekend 2024 with full enthusiasm. In this event 120 students participated and formed 28 teams to pitch their polished ideas. Judges from the industry evaluated their ideas.

Aarambh : A start to a social entrepreneurial journey

A competition was organised by IIC and ENACTUS teams of Thapar Institute to encourage social entrepreneurial ideas. 18 teams shortlisted from across the Pan-India and pitched their solutions to jury members.

Conferences & workshops

ADDITIVE MANUFACTURING : FROM PRINCIPLES TO PRACTICE

The five-day faculty development program titled “Additive Manufacturing: from Principles to Practice” under the Additive Technology Enhancement Program (ATEP) of National Centre for Additive Manufacturing (NCAM) was organized by the Department of Mechanical Engineering at Thapar Institute of Engineering & Technology Patiala from 12th Feb to 16th Feb 2024. This Faculty Development Programme was aimed at enriching faculty and scholars engaged in research, process development, and application activities in the field of additive manufacturing (AM). The FDP aimed to impart knowledge and skills to utilize different AM technologies for the benefit of the research community and its practitioners.

This FDP aimed to achieve several key objectives, including imparting fundamental principles, providing practical experience, offering exposure to technology, trends, and applications, fostering research ideation and interaction, and delivering cutting-edge knowledge for curriculum enhancement and teaching. Professors from prestigious institutions such as the University of Waterloo, IIT Delhi, IIT Ropar, IIT Roorkee, and NITTTR, along with industry experts from Wipro 3D and scientists from CSIR Ludhiana, enriched the participants with their extensive knowledge and experience.

For this FDP, total registered participants were 83 in numbers from different engineering institutes from different parts of the country. Session wise attendance is taken and participants are encouraged for active participation and discussion with experts.

INTERNATIONAL CONFERENCE ON ADVANCEMENTS IN MATHEMATICS

The International Conference on Advancements in Mathematics (ICAM 2023) was organised by School of Mathematics, Thapar Institute of Engineering and Technology, Patiala, from September 28-30, 2023, in both online and offline modes. The event brought together researchers, scholars, and practitioners from across India and abroad to discuss the latest developments, trends, and challenges in mathematics and its applications.

ICAM 2023 featured participants from a variety of mathematical fields, including applied mathematics (differential equations, numerical analysis, approximation theory) and theoretical mathematics (algebra, differential geometry, analysis). The conference aimed to bridge theory and practice, fostering collaboration across disciplines such as engineering, computer science, economics, and operations research.

The event also emphasized the role of mathematics in solving real-world problems, with applications in finance, healthcare, transportation, energy, and telecommunications. Key objectives included promoting interdisciplinary research, identifying emerging challenges, and exploring solutions, while also providing professional development and networking opportunities for students and early-career researchers.

The conference hosted 21 invited speakers from prestigious institutions such as IITs, IISc, NITs, and international universities. The chief guest was Professor Sundar, Director of NIT Mizoram, and the guest of honor was Professor Arvind, Vice-Chancellor of Punjabi University. With around 80 participants, the event successfully fostered collaboration and knowledge exchange within the global mathematical community.

FACULTY SENSITIZATION PROGRAM

Awareness about BIS and participation of faculties in R&D projects of BIS

Department of Civil Engineering, Thapar Institute of Engineering and Technology Patiala in association with Bureau of India Standards (BIS) Parwanoo branch office organized one day Faculty sensitisation workshop on August 22, 2024 under the leadership of Prof. Shruti Sharma HoD, Civil Department, TIET Patiala. The aim of the workshop was to aware the faculties from different departments about the MOU with BIS and to promote their participation in the R&D projects of BIS. More than 50 faculties from various disciplines attended this program. TIET`s Institute nodal officer for BIS, Dr. Vivek Gupta welcomed the BIS delegates and participants. Prof. Bhupendra Chudasama, Associated Dean, R&D addressed the participants about the highlights of MOU signed between TIET Patiala and BIS in the month of May, 2024. The program started with a technical session by Deputy Sukhvir Singh, Joint director, BIS and Nodal officer for TIET Patiala from BIS. He delivered a session on "BIS: Don't You Know Me?". He briefed about the organizational structure and working committee of BIS. Further, Hudson Singh, Director, and Abhishek Murmu, Deputy Director, BIS addressed the participants on how they can contribute to BIS. They explained the life cycle of Indian standard development and way to contribute at different stages of the standard development. In another session, Aman Dhanawat explained the process of participating in R&D projects invited by BIS and the process of proposing new projects to BIS. In the end, a token of memento was distributed to all the participants.

SERB-DST NATIONAL WORKSHOP

SERB-DST Sponsored One-Week National Workshop on Convergence of Explainable Artificial Intelligence (XAI) and Internet of Things (IoTs) in Smart Solution (WCEAII-2024)

The SERB-DST sponsored national workshop on "Convergence of Explainable Artificial Intelligence (XAI) and Internet of Things (IoTs) in Smart Solution" (WCEAII-2024) was organized by the Department of Computer Science and Engineering (DCSE) from February 19 to February 25, 2024 in offline mode. WCEAII-2024 was a one-week event under the scheme "Financial Assistance to Seminar/Symposia" of SERB-DST. The primary purpose of this workshop was to offer researchers from academia and industry a comprehensive understanding of the challenges within the domains of XAI and the IoTs.

The convenors of WCEAII-2024 were Dr. Saif Nalband and Dr. Anjula Mehto, and organizing secretary was Dr. Suresh Chandra Raikwar.

There were total of 40 participants joined the workshop in offline mode from different institutes (Central University Jammu, Savitribai Phule Pune University, Manipal University Jaipur, IILM University, and Greater Noida) across the country.

The chief guest, Prof. Sumantra Dutta Roy from the Indian Institute of Technology, Delhi, delivered the expert key-note speech on "Deep Learning with Biometrics: Some Baby Steps". Experts from different IITs, IIITs, and Industries were the speakers for WCEAII-2024.

INDUSTRY – ACADEMIA
TECHNOLOGY MEET AT TIET CAMPUS

Powder Technology Conclave & Exhibition (PTC2024) was organized by the Department of Mechanical Engineering. Coordinators were: Dr. S.S. Mallick, Dr. Vineet Srivastava, Dr. Ashish Purohit, Dr. Kundan Lal and Dr. Hitesh Mehtani. Undergraduate, Post Graduate, PhD students and faculty from multiple disciplines of TIET attended the technical and networking sessions and provided organizational support. 75% of the total funding were secured from industry.

PTC2024 addressed Powder Technology based innovative solution opportunities to important emerging global challenges, covering the following themes:

- Powder role in sustainable energy, construction, waste reduction
- Powder characterization for design quality
- Reliable powder flow in additive manufacturing processes
- High value powder production and processing
- Pharmaceutical powder characterization, handling, processing
- Powder modelling and simulation
- Industry 4.0: sensors, AI/ML, digital twin in powder application

The conclave was attended by 80 delegates, out of which 60 were from industry and 20 were from academics.

KEY INSTITUTES	KEY INDUSTRIES	KEY EXHIBITORS
• The Imperial College London (UK) • University of Twente (Netherlands) • University of Newcastle (UK) • University of Sheffied (UK) • University of Greenwich (UK) • University of Salerno (Italy) • NIPER Mohali • TIET Patiala • IIT Kharagpur • IIT Bombay • IIT Gandhinagar • India Petroleum Institute	• NTPC • DRDO • MAPAI • Dalmia Cement • Jindal Steel and Power • Dr. Reddy's Laboratories • Novartis India Limited • Cipla Limited • Infosys Limited • ALTAIR Engineering • DesignTech Systems • Freeman Technologies - UK • Anton Paar - Austria • Rieco Industries	• Antor Paar India • Surface Measurement Systems • Micrometrics / Kunash Instruments • Rieco Industries • AMETEK EDAX • ALTAIR Engineering

Sponsors of PTC2024:

- Rieco Industries Limited (Platinum Sponsor)
- AMETEK EDAX (Gold Sponsor)
- ALTAIR Engineering (Silver Sponsor)
- DST - SERB (Government Sponsor)

INTERNATIONAL CONFERENCE ON SUSTAINABLE DEVELOPMENT IN CHEMICAL & ENVIRONMENTAL ENGINEERING

The International Conference on "Sustainable Development in Chemical and Environmental Engineering" (SDCEE-2024) was held from February 22-24, 2024, focusing on critical challenges within chemical and environmental engineering. The event was organized by the Department of Chemical Engineering at Thapar Institute of Engineering and Technology (TIET). SDCEE-2024 emphasized the importance of sustainability in chemical engineering fields such as materials, energy, environmental protection, green technologies, and processing.

SDCEE-2024 opened with an inaugural address by Prof. A. B. Pandit from the Institute of Chemical Technology, Mumbai, whose keynote, "Process and Nature," emphasized the importance and challenges of sustainable development. Prof. Padmakumar Nair and Prof. Ajay Batish of TIET reinforced the institution's commitment to research and progress. The Conference Convener, Dr. Avinash Chandra, concluded the inaugural session with a vote of thanks, expressing gratitude to the speakers, participants, and funding agencies for their valuable contributions to the event.

The conference featured many international speakers from University of Leeds, UK, Politecnico di Torino, Italy, University of Waterloo, Canada, Mondelez International, USA Virginia Tech, USA, University of Surrey, UK. Prominent Indian researchers from SSS NIBE, IIT Delhi, IIT Roorkee, IIT Kharagpur, IIT Bombay, and IIT Hyderabad are participants in this conference.

SDCEE-2024 was supported by TIET, Saraswati Group, SERB, DAE-BRNS, INSA, CSIR, DRDO, and Opus Media. Their support was essential in ensuring the event's success and enhancing participation from various sectors. Selected papers from the conference were submitted for publication in prestigious journals, including the Canadian Journal of Chemical Engineering, Chemical Engineering & Technology, and Environmental Science and Pollution Research.

HAPPENINGS AT THAPAR SCHOOL OF LIBERAL ARTS & SCIENCES

Conference on Exploration of New Reaearch Avenues

The "Explorations of New Research Avenues" conference, held by TSLAS from March 26-28, 2024, at TIET Campus Patiala, gathered leading scholars from economics, sociology, and history, including Prof. Romar Correa (University of Mumbai), Prof. Wolfram Elsner (University of Bremen, Germany), and Prof. Surinder Jodhka (JNU). Inaugurated by Director Prof. Padmakumar Nair, the event fostered interdisciplinary discussions on collaborative approaches to modern challenges, establishing principles to encourage joint research across these fields.

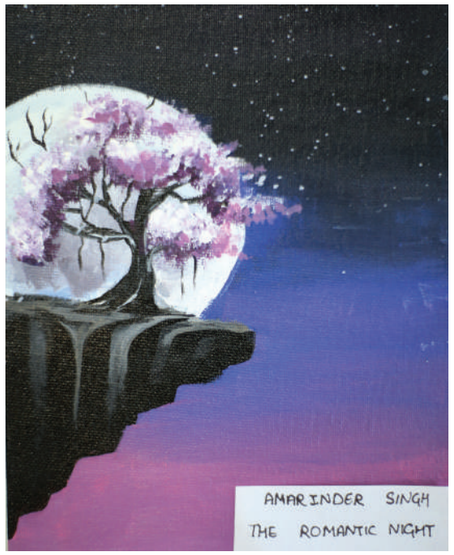
Workshop on digital governance

Prof. Yannis Charalabidis, from the Department of Information and Communication Systems Engineering at the University of the Aegean in Samos, Greece, recently led a workshop on Digital Governance. The session explored its evolving role in enhancing service delivery, data management, and stakeholder engagement. Engaging discussions helped students explore new skill applications, highlighting digital governance's role in future innovation and public service efficiency.

Workshop on digital marketing

Thapar School of Liberal Arts and Sciences held a 7-day Digital Marketing Certificate Course from February 7-14, 2024, aimed at equipping students with modern digital marketing skills. Led by Prof. Efthymios Constantinides and Prof. Sreekumar Pillai, along with industry experts, the course covered SEO, social media marketing, content strategy, and data analytics. Students completed projects to evaluate their learning, earning certificates to enhance their employability and professional growth.

ART EXHIBITION



An art exhibition titled "Palette of Senses" was held in May 2024 at TIET showcasing the work of 160 students of Foundation year and CASP minor students. The event was inaugurated by Director Padmakumar Nair, Deputy Director, Dean, Head of the Department, and professors, who participated in a candle-lighting ceremony. The exhibition celebrated creativity and talent, offering a vibrant display of artistic expression from the students.

EVENTS

Workshop cum hands-on training

A 3-day workshop on "Spectroscopy, Separation, and Surface Characterization Techniques" was organized under the DST-PURSE scheme at TIET Patiala. Led by Prof. Amjad Ali and Prof. Somen Basu from the Department of Chemistry and Biochemistry, the workshop provided hands-on training on HRMS, GCMS, FTIR, Raman, XRD, physical and chemisorption, ICP-AES, and FESEM to 60 participants from academia and industry. Of over 200 applications from 15 states, 60 were selected. There was no registration fee, and the institute covered all expenses. Experts from IIT, CSIR, IISER, and industries provided insights, while Thapar faculty and PhD students offered training. The event began with an inaugural speech by Prof. S.K. Mehta, VC of the University of Ladakh, followed by addresses from Prof. Ajay Batish (DD, TIET) and Prof. P.K. Nair (Director, TIET), highlighting TIET's legacy.

Summer Internship Program

TIET hosted 18 undergraduate students for summer internships lasting over 8 weeks in June–July 2024, sponsored by the DST-PURSE project. During this time, the interns engaged in cutting-edge research across various labs at TIET. A showcase event on July 24, 2024, allowed the interns to present their work through poster displays.

Science Festival

TIET organized outreach activities, partially supported by the DST-PURSE project, in the form of a Science Festival (SCIFEST-2024) at JV Jain College, Saharanpur, and Govt. College for Women, Srinagar, on April 26, 2024. Around 400 students from Saharanpur and over 100 from Srinagar participated, all in their final year of BSc. The event featured activities such as expert talks, quizzes, and competitions for poster and model presentations.

VISIT BY STUDENTS FROM UNIVERSITY OF QUEENSLAND

Professors and 15 students visited TIET for an immersion program. They attended workshops organised by Mechanical, Electronics, Civil, Chemical Engineering Departments and Thapar School of Liberal Arts and Science.

TIET-UQ STEP

Scholarship of Teaching and Education Program 2024

Faculty of Engineering, Architecture, and Information Technology, The University of Queensland, St Lucia Campus, 15th July to 25th July 2024

Fourteen faculty members from various disciplines of Thapar Institute of Engineering & Technology (TIET) attended the inaugural two-week Scholarship of Teaching and Education Program (UQ-STEP), hosted by the University of Queensland (UQ). UQ, established in 1909, is one of the Australia's leading research and teaching institutions, consistently ranked among the top universities globally. In 2025, UQ was ranked in the top 40 universities worldwide (QS World University Rankings).

This program exemplifies the strong collaboration between UQ and TIET and reinforces both institutions' commitment to fostering educational excellence and global cooperation. TIET faculty engaged with UQ faculty in dynamic workshops, gaining insights that contributed to their professional growth. Beyond academic sessions, the delegation also experienced the vibrant culture of Queensland.

The program began with a welcome address by Professor Sue Harrison, Executive Dean of the Faculty of Engineering, Architecture, and Information Technology. It included sessions on Active Learning, Assessing for Learning, and Learning as Professional Practice by the Institute for Teaching and Learning. Faculty also participated in an in-class observation session and a workshop on "Increasing Publication Exposure by the UQ Library".

Enriching sessions were conducted by renowned UQ faculty, including Problem-based Learning by Prof. Saiied Aminossadati, Sustainable Teaching by Prof. Kate O'Brien, and Leadership in Engineering Education by Prof. Greg Birkett, among others. These sessions emphasized innovative teaching approaches and research in engineering education.

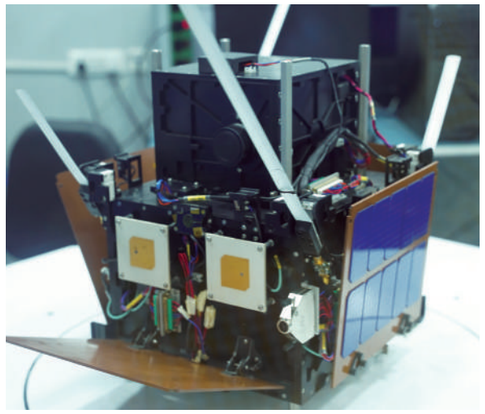
Cultural highlights included the Boomerang Experience Day, featuring a traditional Smoking Ceremony and cultural activities that demonstrated the fusion of traditional wisdom with modern sciences.

The program also allowed meetings with UQ academics and students enrolled in joint degree programs, strengthening collaboration between UQ and TIET. Additionally, the delegation enjoyed visits to iconic Queensland locations, enhancing both professional and personal experiences. Overall, UQ-STEP provided a platform for learning, professional exchange, and lasting partnerships.

International collaborations

Scope of Collaborations							
Research							
Joint Research	✓	✓	✓	✓	✓	✓	✓
Post-Docs	✓	✓		✓	✓	✓	
COE	✓	✓		✓			✓
Global Mobility							
Student Exchange	✓	✓	✓		✓	✓	
Faculty Exchange	✓	✓	✓		✓	✓	
Teaching and Learning							
Academic Reforms	✓	✓	✓				
New Program Support	✓	✓	✓		✓		✓
Faculty Development	✓	✓	✓	✓	✓	✓	
Student Experience							
Global Immersion	✓	✓	✓		✓		
Entrepreneurship			✓				

Thapar satellite program



Pinnacle of Success for Thapar Student Satellite Program

The fraternity of Thapar Institute of Engineering and Technology took a leap of faith four years back and decided to build it's own satellite "ThaparSat" along with a world-class satellite monitoring and control station. The program aimed at equiping its students to venture into the feild of space science and Technology. All the hard work, struggles, sleepless nights, downfalls have final paid-off with a satisfying and illustrious output. The satellite is ready and we are in final stages of testing, before we initiate the launch process with IN-SPACE and ISRO. The satellite aims at real time monitoring of pollution due to greenhouse gases and measurement of soil moisture content in Northern India. The payload consists of a mid-infrared detector in the wavelength range of 2 - 5 µm. This will be used to measure the absorption spectra of greenhouse gases like carbon dioxide (CO_2), methane (CH_4), and Nitrous oxide (N_2O) along with water molecules (H_2O).

To further initiate the capacity building and support the state of Punjab in its univocal quest for the development of the state TIET organised a one day symposium on "ThaparSat: an initiative of TIET towards the future of the space program in the state of Punjab."

Dignitaries from Punjab Govt. bodies attended the Symposium: Member Secretary of Punjab Pollution Board, Joint Director of Punjab State Council for Science and Technology, Director of Punjab Remote Sensing Center, Department of Agriculture, and Dr A S Pillai, founder MD Brahmos Aerospace ltd. Academicians from IISER-Mohali and IIT-Ropar also attended the event and contributed towards the discussion on how the state can benifit through Space technologies.

Outreach initiatives

During the academic year 2023-24, Thapar Institute of Engineering and Technology (TIET) organized several outreach events aimed at fostering community engagement, promoting research and innovation, and building stronger academic-industry connections. These initiatives spanned across various domains, from technical and cultural activities to social responsibility programs, reflecting TIET outcome based approach to education.

A landmark event was the seminar on "Future of AI in Education" held in Kolkata, in association with the Times of India. This seminar brought together educators, technologists, and policymakers to explore how AI can revolutionize the learning experience. Another distinguished technical outreach event was the workshop on the "Tensile Strength of Bridges" and "Storytelling by Data Analysis" held in Kota, which provided students with hands-on learning experiences in engineering and data analysis. Additionally, a workshop on Fine Arts, fostering creativity and artistic expression in West Bengal, while in Assam we hosted a workshop on "Paradox of Gender," aimed at initiating discussions on gender roles and biases in society.

TIET also welcomed top schools of the country to its campus, these visits offered students a chance to experience TIET's state-of-the-art infrastructure, cutting-edge research, and vibrant campus life. The institute also held multiple Open Day events, inviting prospective students and their families for campus tours & interactions with faculty.

Throughout the year, TIET conducted sessions and career counselling help-desks across 300+ schools in India touching the vast frontiers of the country and several schools in Dubai as well providing guidance on academic paths and career options. Another major event was the Annual Education Summit, held in association with Economic Times in New Delhi, focusing on "How Education Leaders Harness Technology to Propel India as a Global Higher Education Hub."

These initiatives highlight TIET's dedication to shaping the future of education and engaging with communities across the nation. Through these outreach activities, TIET has strengthened its position as a progressive institution that fosters growth, inclusivity, and societal impact seeking excellence at the same time.

Students' achievements

SAE SUPRA Event (Buddh International Circuit, Greater Noida, 10-13 July 2023)
A total of 25 team members represented Team Fateh, securing five trophies and ₹2 lakhs in cash awards:

Overall Winner: 2nd place
Engineering Design: 1st place
Autocross Event: 1st place
Acceleration Event: 2nd place
Skidpad Event: 2nd place
Best Performer Award

Formula Bharat Event (Kari Motor Speedway, Coimbatore, 19-24 January 2024)
Thirty team members participated, winning four trophies:

Overall Winner: 3rd place
Overall Statics Winner: 1st place
Engineering Design: 1st place
Cost and Manufacturing: 2nd place

Bharat Mobility Global Expo 2024 (Pragati Maidan, New Delhi, 1-3 February 2024)
Invited by the Government of India, Team Fateh displayed their race car. Four members participated, alongside notable student achievements

Airtel SHECODES-24
- Vanshika Khurana (3rd Year ENC), Ananya Bansal (3rd Year COE), Sanya Mahajan (3rd Year COE) – 1st place

Google Summer of Code 2024
- Siddharth Banga (3rd Year COE), Ayush Sharma (3rd Year COPC), Tamogh Nekkanti (3rd Year CSE), Akshat Jaimini (3rd Year COE), Vishav Singla (3rd Year ENC) – selected

Redesigning the Web (BITS Pilani)
- Aarav Dudeja (1st Year COE), Preetinder Singh (1st Year RAI) – 1st place

Erasmus Mundus Joint Master Program
- Priyam Gupta (4th Year CSE) – selected for IFRoS at the University of Girona, Spain

Minus Zero Startup
- Thapar alumnus Gagandeep Reha unveiled India's first autonomous vehicle, "ZPOD"

NITDGP Hacks 1.0 (NIT Durgapur)
- Harsh Jain (3rd Year COE), Shreeya Chatterji (3rd Year COE) – 2nd place

ICPC AlgoQueen World Finals 2024
- Anushka Goyal (CSE) – Global Rank 4, AIR 1

INFOSYS Makathon 5.0
- Hiten Narang (4th Year COE), Amit Kumar (4th Year COE), Aditi Bansal (4th Year EEC), Akashdeep Singh (2nd Year MCA), Riya Jindal (4th Year ENC) – winners

GATE 2024 (Data Science and AI)
- Deeksha Chutani – AIR 8

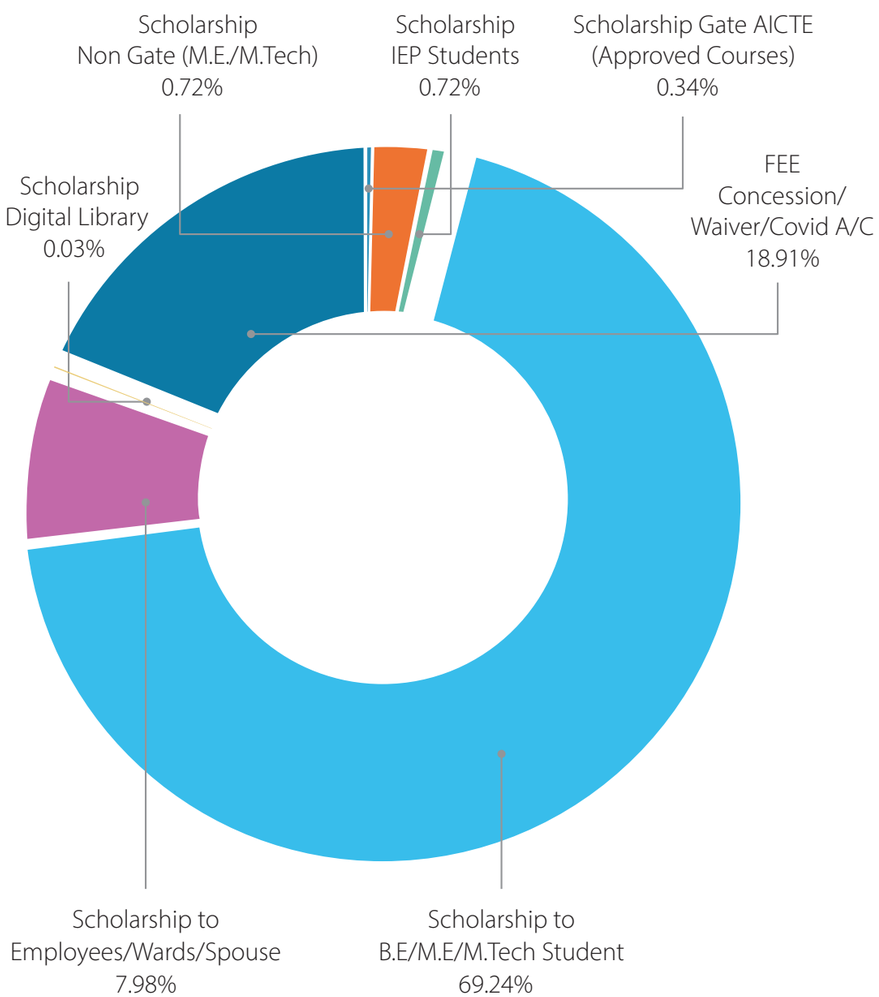
Code for Good 2023 Hackathon
- Yashvardhan Arora, Mudrika Jain, Himanshu Nagpal (all 3rd Year CSE) – winners

Kaggle Notebook Expert
- Arnav Jain (3rd Year COE)

Code4GovTech
- Siddharth Banga (3rd Year COE), Prabhav Chopra (4th Year CoBS) – selected

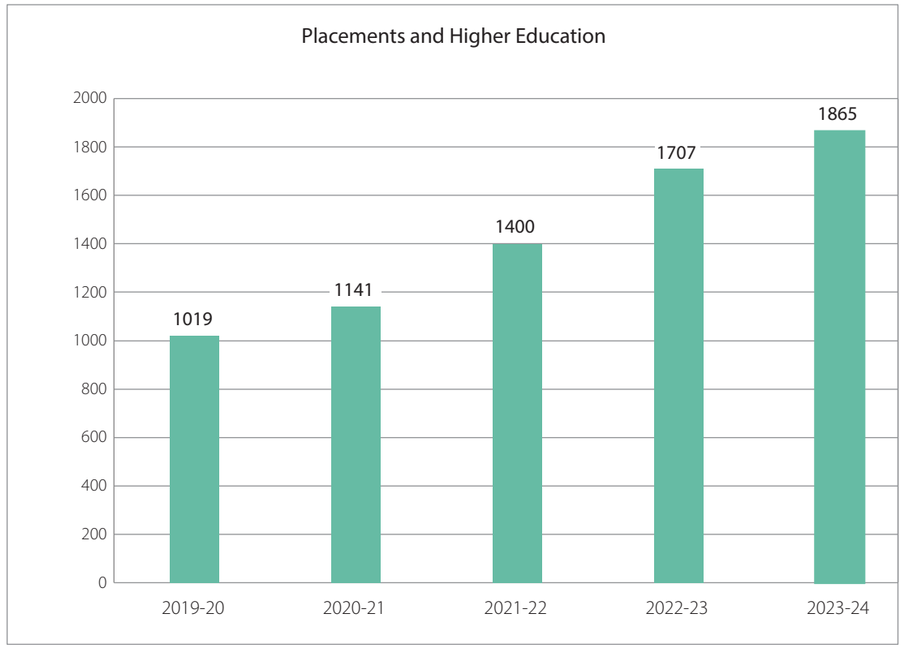
Microsoft Imagine Cup 2023
- Karan Taneja and team "Celestial Biscuit" – India semi-finalists

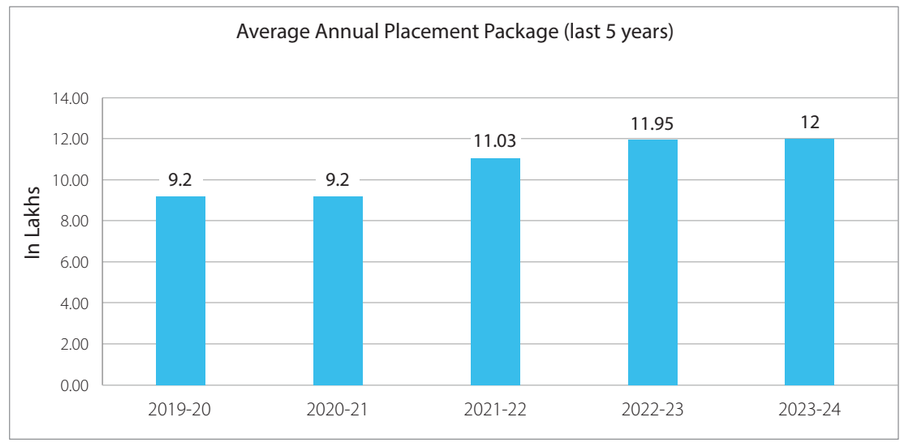
SCHOLARSHIPS



Total student scholarships Rs. 48.80 crores

PLACEMENTS





MEDALS

Ayesha Sood
Prof. V. Rajaraman Computer Science/ Engineering Award

Semanpreet Singh
President Medal

Neeraj Bansal
S. Ranbir Singh Memorial Medal

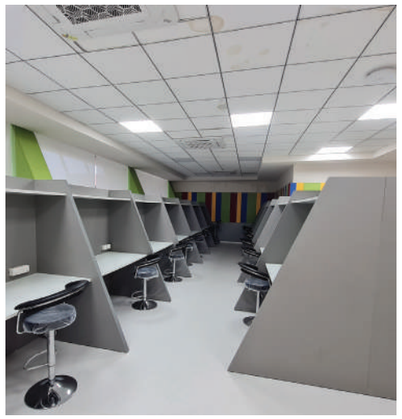
Pushpjot Singh
S. Ram S. Sidhu Memorial Medal

INSTITUTE MEDALS

BTech Bio-Medical Engineering **Kratika Agarwal**	BTech Biotechnology **Rishampreet Kaur**	BE Chemical Engineering **Abhitesh Choudhary**
BE Civil Engineering **Jupinderpreet Singh**	BE Computer Engineering **Yashika Aggarwal**	BE Computer Science & Engineering (Dera Bassi Campus) **Sudhang Mahajan**
BE Computer Science & Engineering (Patiala Campus) **Ayesha Sood**	BE Computer Science & Business Systems **Aniket Sahran**	BE Electrical & Computer Engineering **Pranathi Mehra**
BE Electrical Engineering **Pushpjot Singh**	BE Electronics (Instrumentation & Control) Engineering **Agamjeet Singh**	BE Electronics & Communication Engineering **Garima Gupta**
BE Mechanical Engineering **Semanpreet Singh**	BE Mechatronics Engineering **Mehtab Singh Riar**	BE Electronics & Computer Engineering **Khushboo**

Master of Computer Applications **Anmol Pawa**	Master of Science in Biotechnology **Kashish**	Master of Science in Chemistry **Yashika**
Master of Science in Mathematics & Computing **Gurjeet Kaur**	Master of Arts in Psychology **Khushi Kaur Juneja**	Master of Business Administration **Subhagi**
Master of Business Administration in Business Analytics And Big Data **Rahul Kumar Verma**	Master of Technology in Biotechnology **Divyansh Rana**	Master of Technology in VLSI Design **Parul Garg**
Master of Technology in Environmental Science & Technology **Atirah Nisar**	Master of Engineering in Structural Engineering **Zaid Bin Bashir Sufi**	Master of Engineering in Computer Science & Engineering **Aashima Madaan**
Master of Engineering in CAD/CAM Engineering **Ayush Gupta**	Master of Engineering in Thermal Engineering **Harpreet Singh**	Bachelor of Engineering (Dual Degree) **Sarthak Vohra**
Master of Business Administration (Dual Degree) **Saurav**	Bachelor of Business Administration (4 year Program) **Dhruv**	Bachelor of Arts (4 year Program) **Gurpreet Singh Bajaj**
Bachelor of Science (4 year Program) **Harbans Singh**	Bachelor of Business Administration **Vandita Pruthi**	Bachelor of Arts **Khushi Garg**

New infrastructure



TIET awarded with RIBA Excellence Award for Architecture in 2024.

Financials

YEAR ENDED 31ST MARCH, 2024

SN	PARTICULARS	Sch. No.	For Year ended 31.03.2024	For Year ended 31.03.2023
A	INCOME		₹ ('000)	₹ ('000)
1	Tuition Fee	15	33,40,292	27,81,147
2	Other Academic Fee	16	3,97,688	3,15,058
3	Hostel Income	17	12,16,090	10,06,147
4	Interest Income	18	1,23,213	82,567
5	Income from Facilities	19	6,364	7,008
6	Income from Enterprise Activities		5,891	11,154
7	Miscellenous Income	20	98,760	76,599
8	Excess of Expenditure over Income		54,275	1,31,123
	Total		**52,42,572**	**44,10,802**

SN	PARTICULARS	Sch. No.	For Year ended 31.03.2024	For Year ended 31.03.2023
B	EXPENDITURE		₹ ('000)	₹ ('000)
1	Establishment Expenses	21	20,87,843	18,41,194
2	Scholarship Expenses		3,08,695	3,41,878
3	Contribution to Projects		18,006	44,134
4	Student Activities & Welfare Expenses	22	19,271	13,916
5	Facility Expenses	23	2,570	3,878
6	Other Operating Expenses	24	16,24,695	11,79,717
7	Depreciation	10	9,89,765	8,71,716
8	Provisions for Gratuity		1,30,878	69,074
9	Provisions for Leave Encashment		60,849	45,297
	Total		**52,42,572**	**44,10,802**

www.thapar.edu

THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

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