THAPAR INSTITUTE OF
ENGINEERING & TECHNOLOGY

Annual REPORT

2022-23

www.thapar.edu

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

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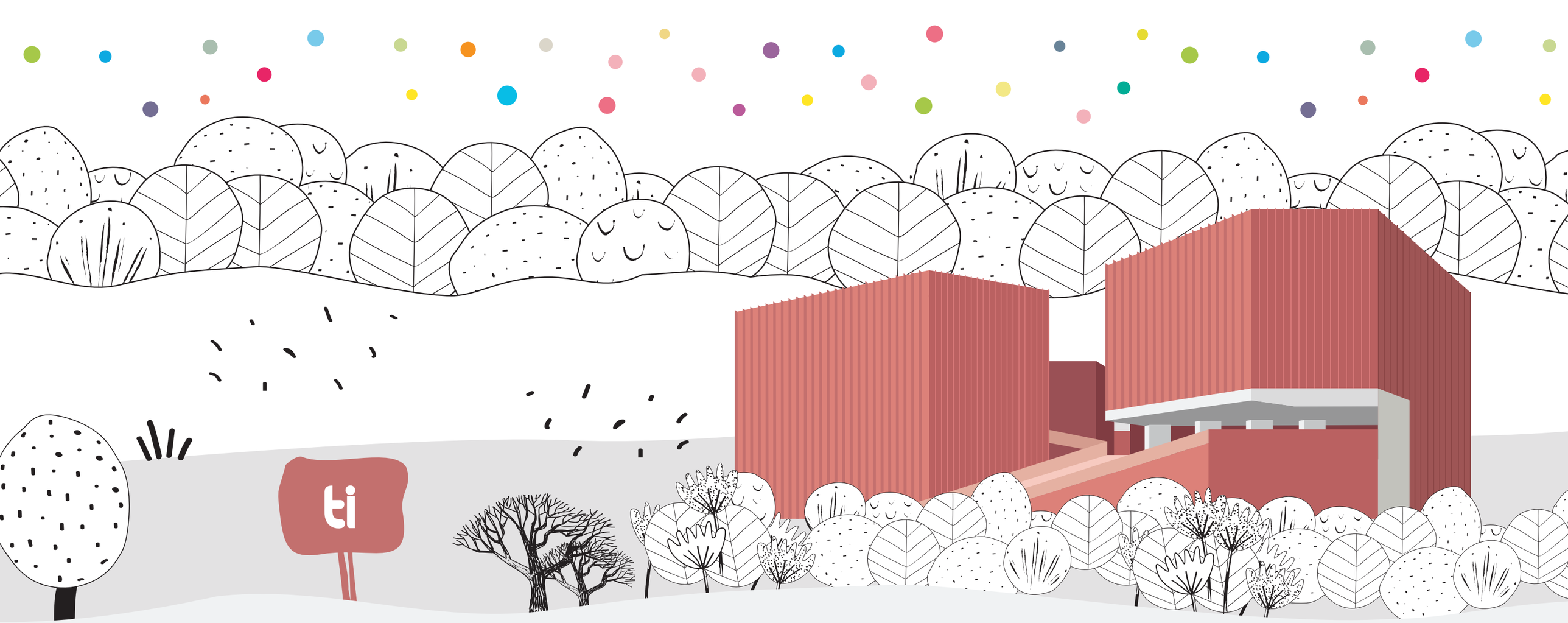
ANNUAL REPORT 2022-23



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-LMTSoM

2020
Started Thapar School of Liberal Arts & Sciences-TSLAS

President's MESSAGE

Today, Thapar Institute of Engineering & Technology (TIET) proudly stands among the select few Indian universities that have achieved high rankings both in India and globally. Our unwavering commitment to academic and research excellence has been the cornerstone of our journey.

At TIET, we are not just an institution; we are the architects of careers, the creators of future leaders, and the innovators of tomorrow. With a history of 67 years, marked by excellence, adaptability, and the courage to embrace change, TIET has reached remarkable milestones.

Our diverse array of programs, encompassing engineering, liberal arts, science, and management, reflects our trajectory towards becoming a comprehensive university. These programs and activities are designed to instil qualities such as intellectual acumen, ethical values, sustainability, and a global perspective in our students and staff. Many of our faculty members have conducted high-quality research, and our students have consistently demonstrated exceptional talents. The institute has initiated numerous endeavours to bring our research and teaching to a global standard.

Research remains at the core of our mission. We will continue to invest in state-of-the-art research facilities, expand our academic programs, and strengthen our partnerships with leading global universities and other organizations. TIET foresees significant growth in interdisciplinary and multidisciplinary research across various fields in the future. In addition to department- specific research, TIET has identified key cross-cutting research themes and is in the process of establishing six Centres of Excellence (COEs).

We are excited to share our plan to establish an off-campus facility of TIET in the National Capital Region. This strategic initiative has received approval from the Board of Governors of TIET and aligns perfectly with our mission to provide accessible and impactful education across nation. We are diligently working to secure the necessary approvals and licenses to move this vision forward.

In the years ahead, let us uphold the values that define us and strive tirelessly to attain new heights of success. I am confident that our grand vision for the Institute will materialize, and TIET will emerge as the most sought-after destination for students, educators, and researchers from India and abroad.

Together, we will continue to shape the future and make a lasting impact on the world.

Warm regards,

GAUTAM THAPAR

Chairman BoG's MESSAGE

TIET during the last decade has made significant strides in establishing itself as one of the best institutions in the country delivering highest quality education in the field of Science and Engineering. In the Engineering category, it is ranked by NIRF as 20th in country and in University category is placed at 22nd position. We take pride in the fact that the institute is favoured by best students in the country. The institute is clearly focused to improve its position to a higher level, over the next few years.

The strategic plan of the institute approved by the Board of Governor in the year 2020-21 covers a broad range of goals across multiple areas of development with strong focus in research. I am glad to inform you that by 2026, we would have a student strength of around 15000, across all categories. Over the last decade, the management of the Institute has paid special attention to new infrastructure and I am pleased to see world class buildings coming up on the campus. The five-year strategic plan is being continuously monitored and modified to achieve all strategic goals listed there-in.

TIET has established student – centric teaching and learning practices on outcome-based education methodology. The diverse programs in Engineering, Sciences, Management and Liberal arts are aimed at developing critical thinking, social awareness, global perspective and empathy of the students.

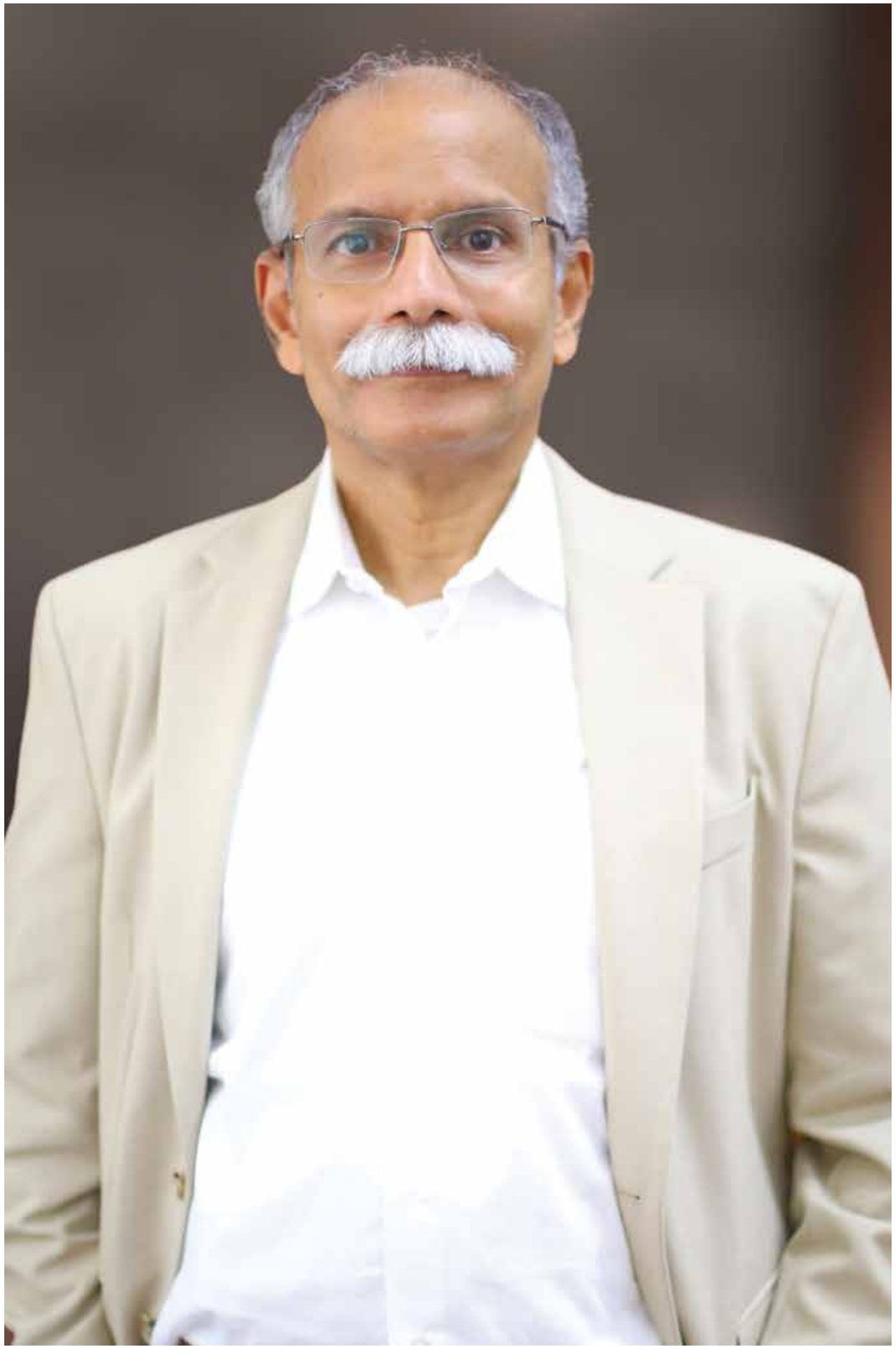
The philosophy of education being followed by TIET is equal to the best in the country. TIET has established several Centres of excellence in partnership with leading world universities, which are delivering significant research outcomes. Already four centres of excellence have been finalised in the areas of Emerging materials, Food Security, Advanced manufacturing processes and Data Science. TIET has established three chairs to lead the food Security and Advanced Manufacturing Centres with Tel Aviv University and centre of Emerging materials with Virginia Tech. Research and innovation have facilitated academic partnerships with some of the leading universities of the world such as Trinity College Dublin. University of Queensland, Virginia Tech, Tel Aviv University and University of New South Wales.

The institution's commitment to quality improvement includes large allocations for modernising laboratory facilities, major capital equipment, new and modern spaces for academic use, world-class library, new hostels and sports facilities.

I am also pleased to inform you that TIET is going ahead with its plans to develop an off campus in NCR region. An application has been made to the Government of Haryana seeking necessary permissions. A feasibility report is being prepared by KPMG in this regard. We expect to get required permissions and hope to commence construction by early 2025.

I am sure that with the coming up of the NCR campus, TIET will attain the stature of a comprehensive university. The entire team at TIET is committed to continue on the path of achieving excellence.

RAJEEV RANJAN VEDERAH



Director's MESSAGE

Soon after our nation became independent, Mr. K.C. Thapar, a visionary, with a sense of responsibility and nationalistic spirit conceived the idea of an engineering college. In 1956, it became a reality when he founded Thapar Institute located on a green campus comprising of more than 250 acres in the historic city of Patiala in Punjab. The foundation stone was laid by the then President of India, Dr. Rajendra Prasad. Since that day, Thapar Institute of Engineering & Technology (TIET) has shaped the country's youth and helped them to be future leaders.

Thapar Institute today is a rich heterogeneous mix of over 12000 students. Our students have dreams in their eyes and an indomitable spirit to succeed.TIET is a unique campus with extraordinary potential to develop and transfer indigenous technology to industry. As a result of the inspiring vision and perseverance of its founders, TIET, has steadily and impressively grown and activities during the last more than six decades of its existence. Over 40000 alumni have left the portals of the Institute thus far, distinguishing themselves as proud Thaparians in diverse fields in our country and abroad.

Keeping pace with emerging global standards, globalization and advances in technology, Thapar Institute offers quality education ecosystems ranked and recognized worldwide. Our rankings are by the foremost global educational ranking organizations. TIET is ranked 20th amongst all engineering institutions and 22nd amongst all Universities in NIRF Rankings 2023 and is a NAAC A+ accredited institution. Eligible programs are NBA and ABET accredited. At present, TIET is among the few top Indian private universities who feature in the top 500 of subject rankings of Times Higher Education and QS world rankings.

Over 3700 students join TIET's wide range of programs every year and join a community of 700+ faculty and 40000+ Alumni across the globe. TIET's teaching and learning practices focusses on student-centred learning and the outcome based and project led pedagogical approach that brings out the best in each student. The diverse programs in Engineering, Sciences, Management and Liberal Arts are aimed at developing quality of mind, ethical values, social awareness and global perspectives.

Thapar Institute believes in the power of connectivity. Our initiatives are aimed at deepening industry-campus bond, thereby building a strong foundation for future needs of both academia and industry. This bond focuses on creating Industry ready professionals whose capabilities are aligned with the needs of the market. Our exceptional reputation for teaching and research enables effective institutional interaction and engagement. These interactions bring greater value to the student community and facilitate in garnering excellent internships. Perhaps this is why TIET collaborates so well with over 350 multi-national companies that visit us to hire almost all our students. TIET is ever evolving and keeping pace with the changing needs of the society.

This brief report provides a summary of our activities, achievements and accomplishments in the different spheres during the year 2022-23.

PROF. PADMAKUMAR NAIR

About TIET

OUR VISION & MISSION

VISION

To be recognized as a leader committed to Excellence in Higher Education, Research and Innovation that meets the aspirations of the global community.

MISSION

- To redefine and revolutionize Indian engineering education by unlock the beauty of engineering and applied sciences for the current and future generation
- To instill excitement of engineering in young minds.
- To make Patiala, Punjab and India proud of being the most sustainable region of the world through creating, disseminating and applying actionable engineering knowledge.

CORE VALUES

Excellence

Integrity

Accountability

Transparency

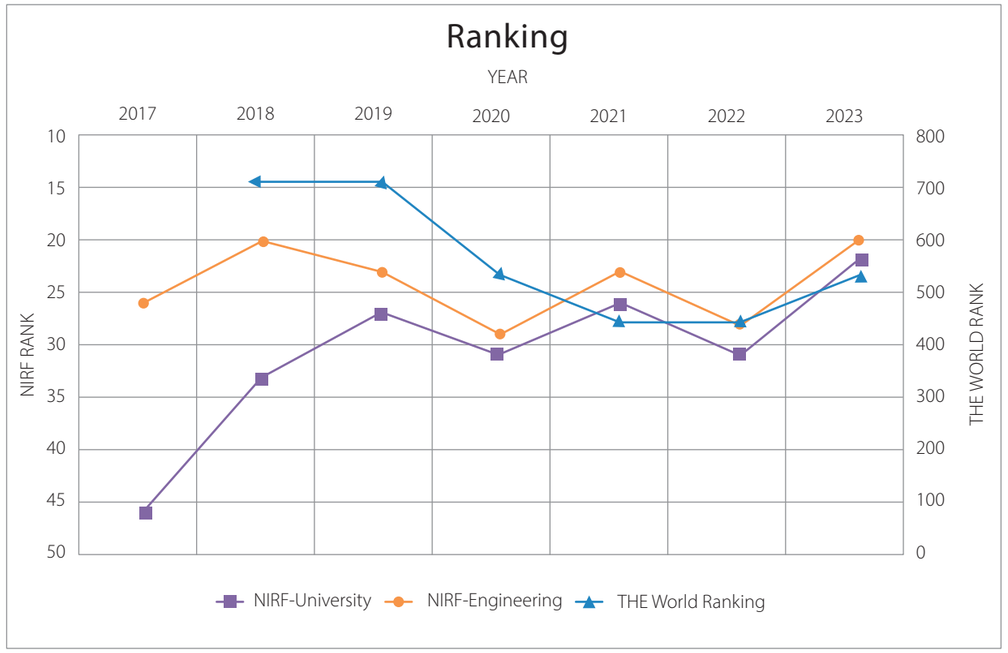
Diversity

RANKINGS & ACCREDITATIONS

TIET continues to be ranked high in all global and Indian rankings specially in the subject rankings for computer science and engineering. We continue to hold our high Indian rank as reflected in the 2023 NIRF Rankings where we featured at 20th position amongst the top engineering institutions in the country. We were ranked 22nd among all Universities in India.

TIET was ranked in "601-800" bracket worldwide in the Times Higher Education World University Rankings 2023 and 145th in Asia Rankings. Also, ranked in "951-1000" bracket worldwide in QS World University Rankings 2023. Also, Times HE World ranked us in 401-500 bracket in engineering category, and Computer Science program in 251-300 bracket.

All eligible engineering programs received ABET re-accreditation for the next 6 years. Eligible undergraduate programs at Thapar Institute are accredited National Board of Accreditation (NBA) India. The Institute is accredited as 'A+' grade Institution by National Assessment and Accreditation Council (NAAC) from March 2019 for five years.



NAAC A+
Accredited A+ by NAAC

NBA
Accredited Programmes

#20
Engineering Category

601-800
Bracket in THE World University Rankings

#145
THE Asia Ranking

251-300
Computer Science 2023 by Subject (Global)

401-500
Engineering 2023 by Subject (Global)

951-1000
India University Rankings

451-500
Electrical & Electronics 2023 by Subject (Global)

#22
University Category

#34
Research Category

#49
Management Category

201-300
Telecommunication Engg

401-500
Electronics & Electrical Engg

151-200
Computer Sc and Engg

ABET
Accredited Programmes

Year at a GLANCE

The year was filled with academic rigor, innovation, and celebration. The year began with the commencement of the academic session, accompanied with the new opportunities for learning and growth. This year, we are honored to receive the prestigious DST-PURSE 2023 award from the Department of Science and Technology (DST) of India. This prestigious recognition lauds our institute's remarkable contributions to research and innovation, marked by our multidisciplinary research approach and successful industry-Institute collaborations. Notably, we received the highest grant of Rs. 21.51 crores among all institutes and universities selected in this round of selections. Tel-Aviv university President, Prof. Ariel Porat, inaugurated a hostel at TIET.

Throughout the year, students actively participated in various clubs and societies, exhibiting their talents and passions. As the year progressed, we observed National festivals, Founder's Day, engaged in intercollegiate sports events, and promoted environmental awareness on Earth Day. Thapar Institute's calendar was also marked by internships, alumni reunions, conferences, workshops. Notably, our remarkable 20th position in the National Institute Ranking Framework was a source of immense pride, a testament to the collective dedication of our faculty, students, and staff. Our commitment to education and innovation remains unwavering as we look forward to a year filled with learning, growth, and success.

The institute had been very active in research. Our research strengths were well reflected through research indexes and research grants received. The h-index on Scopus and Web of Science is 152 and 134 respectively. The institute's citation index on Scopus and Web of Science is 16.51 and 17.96 respectively. The faculty received a total of Rs. 13,86,96,000 as research grants from leading funding agencies. Out of this Rs. 7,76,47,000 was received from various government agencies. Our specialized capabilities resulted in a total funding of Rs. 10,49,000 from leading industries for collaborative research, and a total of Rs. 6,00,00,000 was seed funded by the institute for the young faculty members.

Like previous years the institute performed very well on national and international ranking frameworks. On National Institution Ranking Framework (NIRF), we were ranked 20th in Engineering, 22nd University, 49th in Management, and 34th in research category, respectively. In Times Higher Education rankings TIET is ranked in 601-800 bracket in world University category, 401-500 bracket in engineering category, and our Computer Science program is ranked in 251-300 bracket. Our Computer Science and Engineering program, Telecommunication Engineering and Electronics and Electrical Engineering ranked 151-200, 201-300, and 401-500 bracket respectively in Shanghai Ranking.

The institute recognizes the importance of scholarships for the students. The needy ones can focus on their studies and excel without any apprehensions about the finances; whereas merit scholarships support the endeavor of the students to get motivated and outshine academically. The institute disbursed scholarship amounting to a total of Rs. 34,19,00,000 during the year.

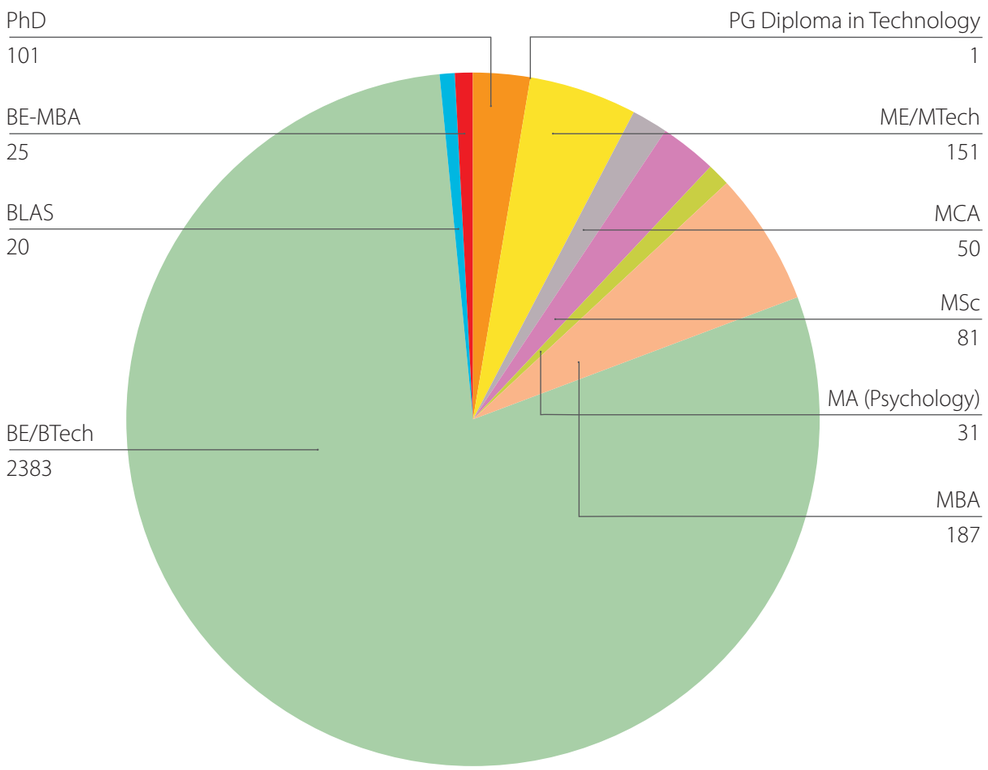
Around 350 reputed organisations visited our institute for placements and our students did exceedingly well on grabbing the job & internship opportunities in various organizations. The highest package offered was Rs. 55.5 lakhs with an average of Rs. 11.80 lakhs. Many students joined best universities across the world to extend their educational endeavors.

Institute has three functional Center of Excellence (COE) in the field of Advanced Manufacturing, Food Security and Emerging Materials. Satellite monitoring and control station for the Thapar Satellite has been operating since 2021. Project has been duly approved by Shri Bhagwant Mann, Chief Minister of Punjab along with officials from concerned departments of the government body.

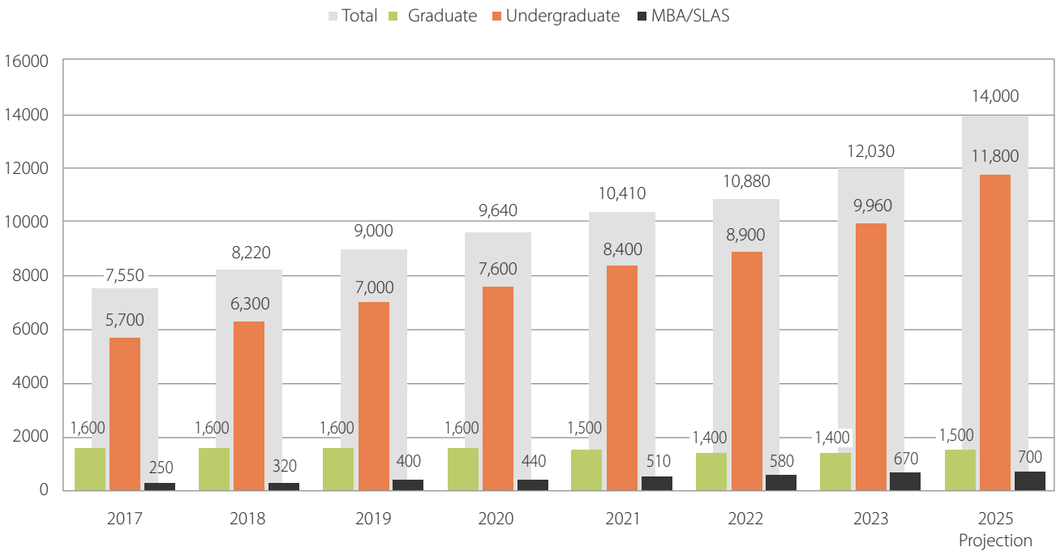
Over 3700 students were enrolled for various Undergraduate, Postgraduate and Ph.D programs during current academic year. Over 700 PhD research scholars are presently working in various schools and departments of the institute.

Numbers at
A GLANCE

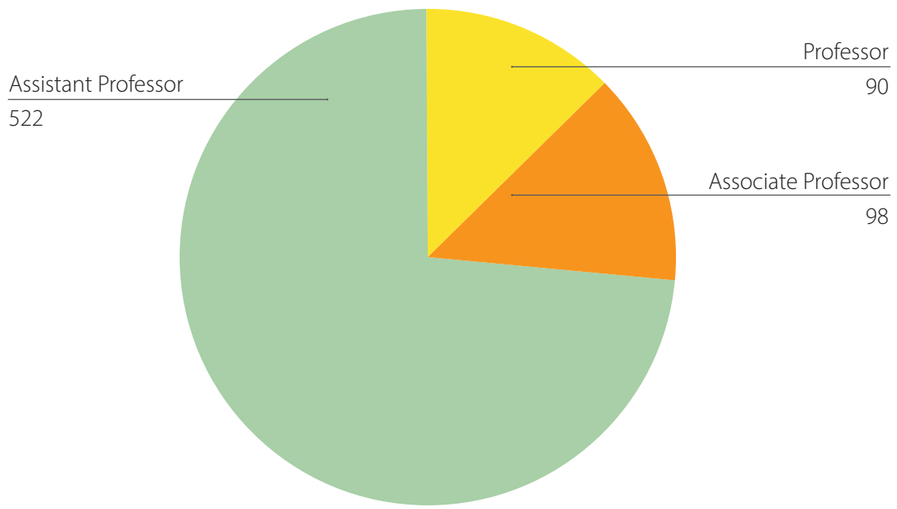
GRADUATING STUDENTS 2022-23



ENROLLED STUDENTS



FACULTY



Academic EXCELLENCE

TEACHING & LEARNING

The debate on quality of technical education and employability of engineering graduates has been a hot topic of discussion in the academia and industry. We at TIET have taken several initiatives during the last five years to impart technical skills, develop critical thinking and a mindset for a successful career in engineering and technology.

TIET is one of the few institutions in India that practices outcome-based education. The students have freedom to take up many cross-functional, multi-disciplinary design projects and assignments. We measure the attainment of course learning outcomes and corrective actions are initiated as and when required. All staff are encouraged to bring in cutting-edge research ideas from their own domain into their teaching.

ACADEMIC UNITS OF THE INSTITUTE

The academic units of the Institute are Departments, Schools and Centres. Role of the Departments and schools is to conduct undergraduate, postgraduate, and doctoral programmes in relevant engineering/technological disciplines. The Centres are special interdisciplinary research units serving the University as a whole.

DEPARTMENTS

Bio-Technology
Chemical Engineering
Civil Engineering
Computer Science & Engineering
Electrical & Instrumentation Engineering
Electronics & Communication Engineering
Mechanical Engineering

SCHOOLS

Chemistry & Bio-Chemistry
Humanities and Social Sciences
Mathematics
Physics & Material Science
Energy and Environment
Thapar School of Liberal Arts & Sciences
LM Thapar School of Management

CENTRES

Library
Workshop
Industrial Liaison and Placement
Centre of Relevance and Excellence
Information and Technology Management
Health Centre
Centre for Training and Development
Centre for Academic Practices and Student Learning (CAPSL)
Experiential Learning Centre

LIBERAL ARTS:
THE BIRTHPLACE OF INNOVATORS

In today's world, education is about acquiring technical skills and knowledge to succeed and address challenges in any given professional domain. In this respect, Thapar Institute has a long tradition of training young professionals in their respective fields. Nevertheless, while technical education operates successfully within well-defined boundaries, it is instead of limited efficacy in advancing or shifting the paradigms. Whatever the sector, innovation is hard to crack. It demands you to focus on what could be possible and achievable beyond what you already know is the case, given your technical skills and knowledge. In other words, to innovate is to have your ideas drive your skills, rather than the other way around. But here's the catch: there's no magic bullet for good ideas. Books can abound with good ideas, and yet none of them are yours. Moreover, no good idea can aim at shaping the human future if it's disconnected from the human present and past. Innovation is always innovation for humans. Hence an idea is good and innovative only if it speaks to the people it is meant for; if it understands their needs, their cultures, and their histories. To get to good ideas, your good innovative ideas, you must train in the art of becoming an expert ideator. The goal of the Thapar School of Liberal Arts and Sciences is to train young professionals to become free, innovative thinkers beyond specialised vocational training. Liberal education is free insofar as it is well-rounded, cutting across subjects such as history, philosophy, sustainability studies, cultural studies, sociology, economics and much more. Our degrees foster intellectual exploration, philosophical thinking, and a deep understanding of human society and culture. At the end of it, it's your good idea.

ANDREA RAIMONDI
Thapar School of Liberal Arts & Sciences

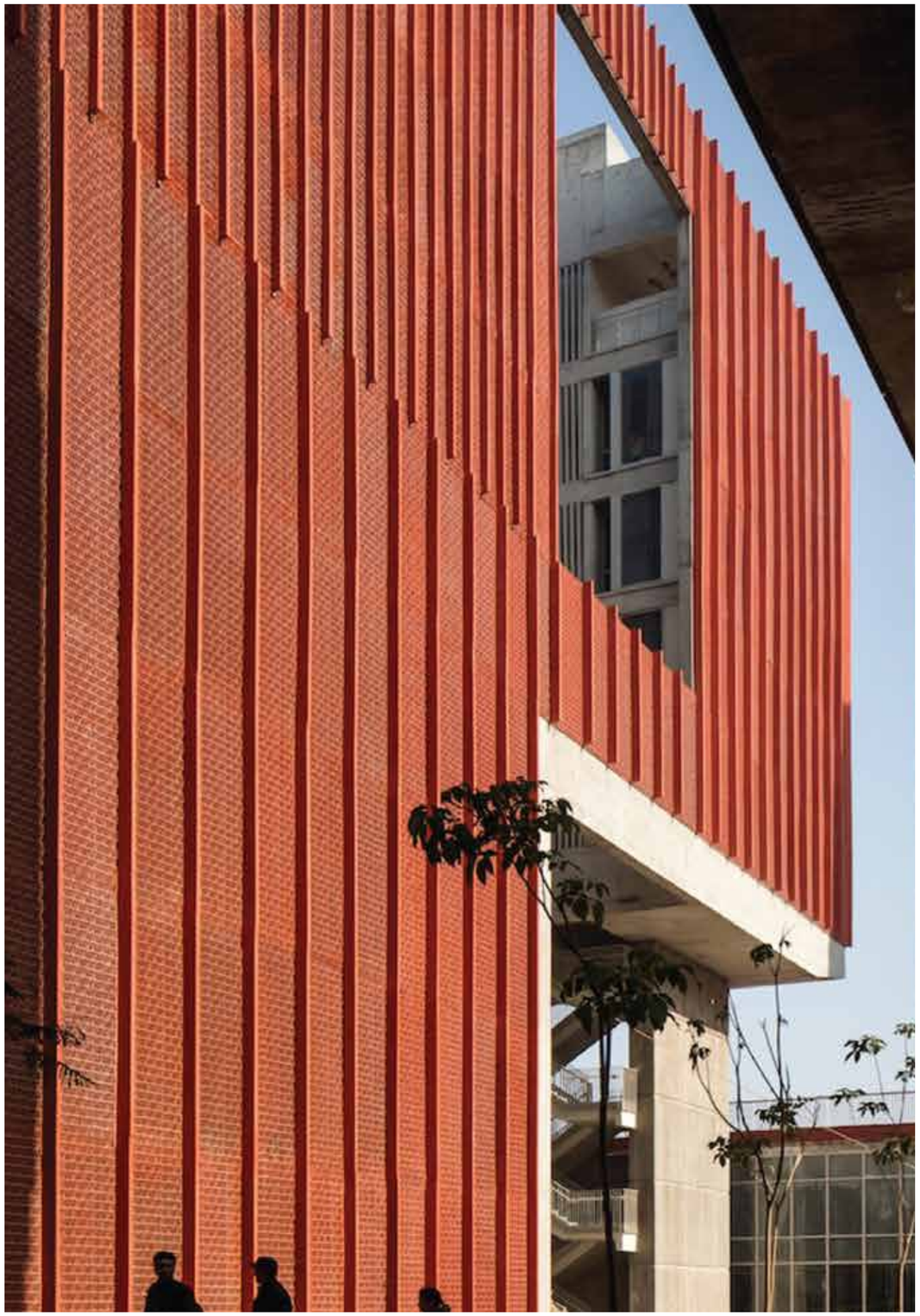
MASTER IN RESEARCH AND INNOVATION IN HIGHER EDUCATION (MARIHE)

The MARIHE Erasmus Mundus Joint Master Degree program is a prestigious international initiative that focuses on the field of 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 programme 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 field of higher education, well-prepared to take on leadership roles in universities, research institutions, government agencies, and international organizations. They are not only well-versed in the theoretical aspects of higher education but also possess practical skills that are in high demand within the global higher education landscape.

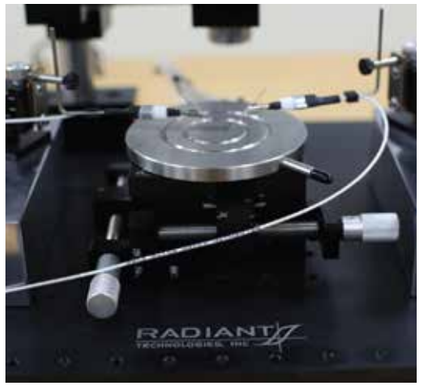


INTERNATIONAL COLLABORATIONS

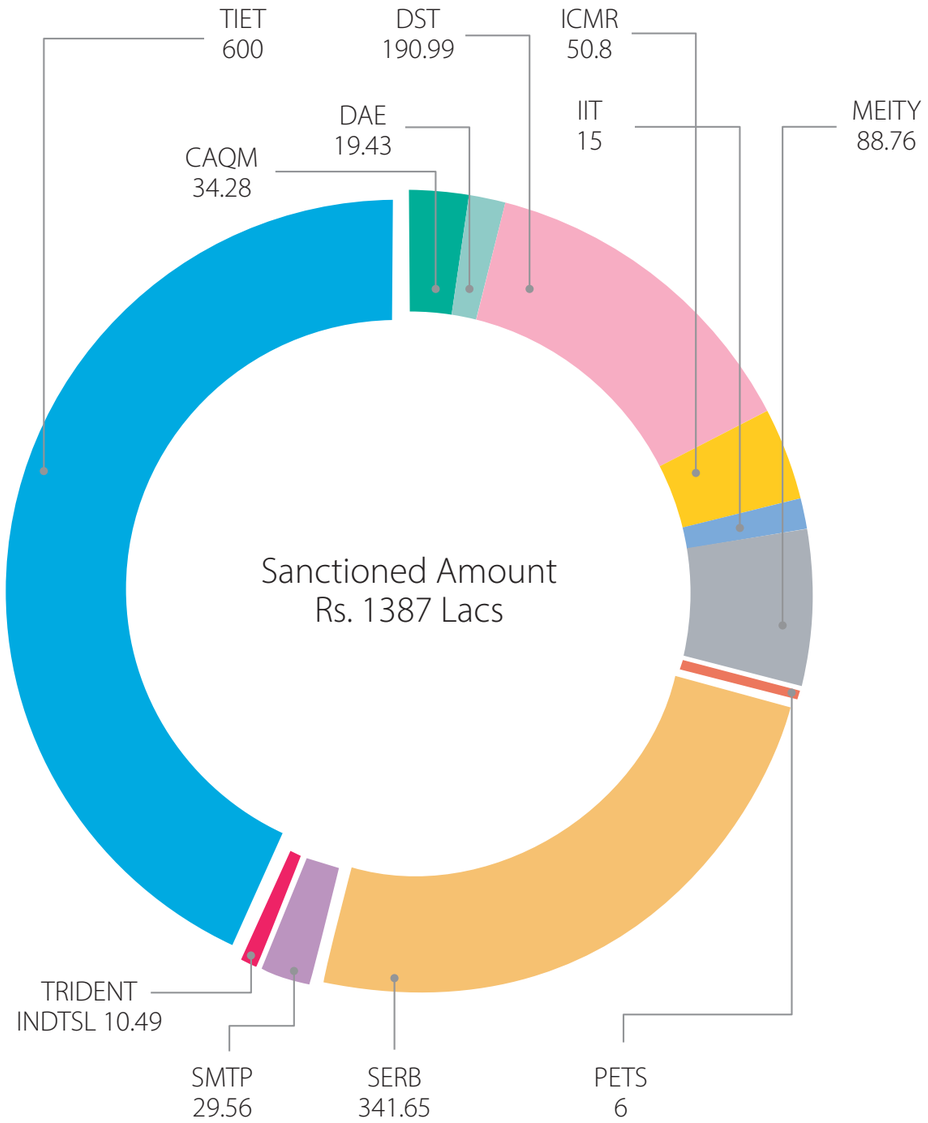
Research
EXCELLENCE

Thapar Institute offers world-class infrastructure and a sound knowledge base to carry out complex research projects. Research is a stated mission and many are funded by government agencies and industry. Our research projects are not just for technological innovation but also for amplification of research results, transfer of technology and establishing technology driven businesses. Thapar Institute has several centres of excellence for students and researchers. Many renowned Indian and international companies are associated through research and faculty exchange programs.

Cutting-edge research is at the heart of the institute, which believes that original research has to be the backbone of engineering education. Over the last decade, TIET has experienced remarkable growth in research activity and has become one of India's most research-intensive institutions. Clear evidence of this is the upward trend in the quantum of citations, publication and collaborative works. There are close to 1500 research papers published in Refereed Journals in 2022 and published over 1200 (till Oct 2023) in current year by the faculty of our Institute. 96 sponsored research projects are currently ongoing in different disciplines out of which 24 research projects of amount 787 Lakhs have been sanctioned in the current academic year 2022-23 sponsored by various Government agencies and Industries. With a focus in niche areas of engineering and sciences, TIET has over 12000+ published research papers in peer-reviewed journals under its belt.

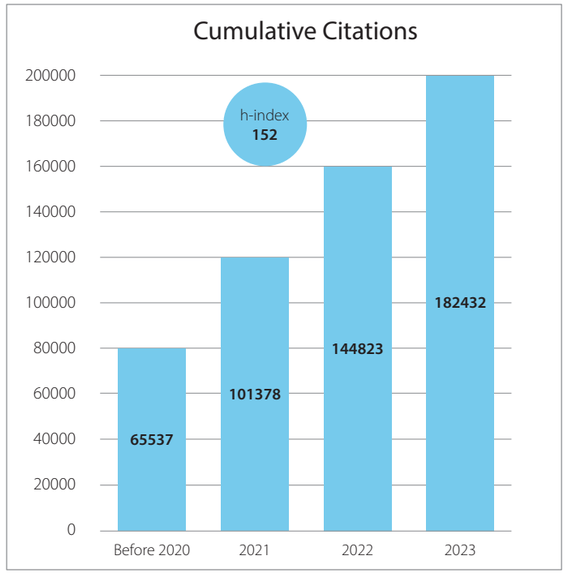


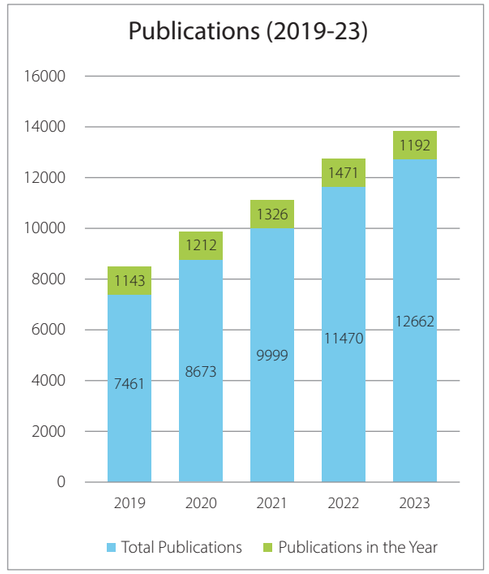
RESEARCH GRANTS

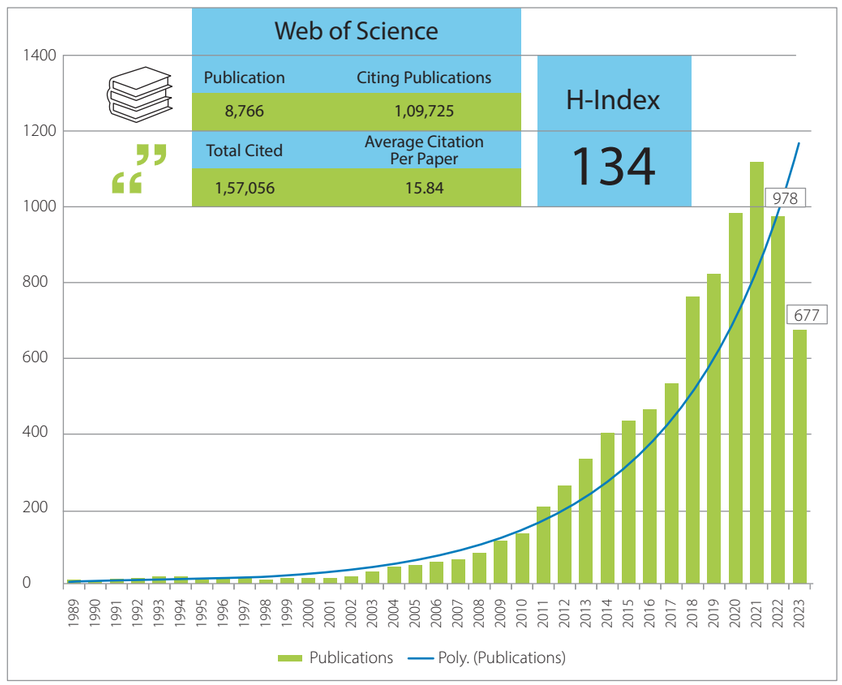


Amounts in lacs.

CITATIONS AND PUBLICATIONS







DST-PROMOTION OF UNIVERSITY RESEARCH & SCIENTIFIC EXCELLENCE (PURSE) - 2023

Thapar Institute of Engineering and Technology (TIET), Patiala has been honored with the prestigious DST-PURSE 2023 award. The award, bestowed by the Department of Science and Technology (DST) of India, recognizes the university's exceptional contributions to research and innovation across various disciplines. This esteemed accolade is a testament to the university's dedication to fostering a culture of innovation and research excellence. The university's multidisciplinary approach to research and its collaborations with industry and other academic institutions were highlighted as key factors contributing to its success. The DST Purse Award includes a grant of Rs. 21.51 crores, which is the highest amount awarded to any institute/university in this round of selection.

This financial support will enable the university to invest in state-of-the-art facilities and new research projects that hold the potential to revolutionize various fields and benefit society, at large. This grant will enable TIET to establish a state of the art high-resolution transmission electron microscopy lab and X-ray photoemission spectroscopy lab. The title of the approved project is "Development of technologies for converting waste to wealth". Through this project, TIET aims to develop a set of technologies that will convert bio, agro and industrial waste into energy by converting them into hydrogen or alcohol. This program is well aligned with the objectives of the several national missions of Government of India like National Mission on Waste to Wealth, National Hydrogen Mission, National Mission on Water and Clean Energy, Self-Reliant Atma Nirbhar Bharat Mission and Start-up India Mission. The proposed processes will not only help the country in becoming self-reliant in energy but also help tackle issues related to air, water and industrial pollution by minimizing their uncontrolled discharge in environment.

Prof. Padmakumar Nair, Director and Prof. Ajay Batish, Deputy Director led the team that defended the proposal before the program management board of DST, which was held at Guwahati University. Prof. Bhaskar Chandra Mohanty is coordinating the project with Prof. Anoop Verma, Prof. Amit Dhir, Prof. Amjad Ali, Prof. BN Chudasama, Prof. Bonamali Pal, Prof. Haripada Bhunia, Dr. Jayant Kolte, Prof. Kulvir Singh, Dr. LK Brar, Prof. MS Reddy, Prof. Naveen Kwatra, Prof. OP Pandey and Prof. Soumen Basu as lead investigators.

TIET-VIRGINIA TECH CENTER OF EXCELLENCE IN EMERGING MATERIALS (CEEMS)

CEEMS has come a long way since its inception in July 2019. With the maturing of some of the ongoing projects over a period of about three years, and based on their accomplishments, we identified three broad thematic areas in CEEMS primed for growth and national/international prominence. These are the Detection and treatment of cancer, development of Coal-derived graphene-polymer composites, and Sustainable construction materials. Two exemplar projects in these areas are

Enhancing the Mechanical Performance of E-Glass Fiber Epoxy Composites using Graphene Oxide

In this research endaevour, a comprehensive analysis and comparison of various graphene oxide (GO) nanofillers obtained from different precursor sources, assessing their respective contributions to augmenting the mechanical properties of epoxy resin composites reinforced with E-glass fibers (EGFPs). Significant enhancements were particularly evident in EGFPs reinforced with GO. These findings underscore the potential of GO as a cost-effective reinforcement for polymer nanocomposites for various industrial applications.

Treatment of Gastric Cancer by Activation of Natural Immunity using Helicobacter pylori coated with Iron-oxide Nanoparticles: in silico, in vitro, and in vivo approaches

Stomach cancer is the fourth most diagnosed cancer worldwide, with over one million new cases reported each year. In India, stomach cancer is the second most common cancer in men and women after lung cancer. H. pylori infection is the most common risk factor for stomach cancer, accounting for over 70% of cases. H. pylori is a bacterium that infects the lining of the stomach. The proposed targeted hyperthermia cancer therapy using a non-pathogenic strain of H. pylori coated with iron oxide nanoparticles (IONPs) has the potential to revolutionize the treatment of stomach cancer. This therapy is non-toxic and specifically targets cancer cells, avoiding the undesirable side effects of chemotherapy.

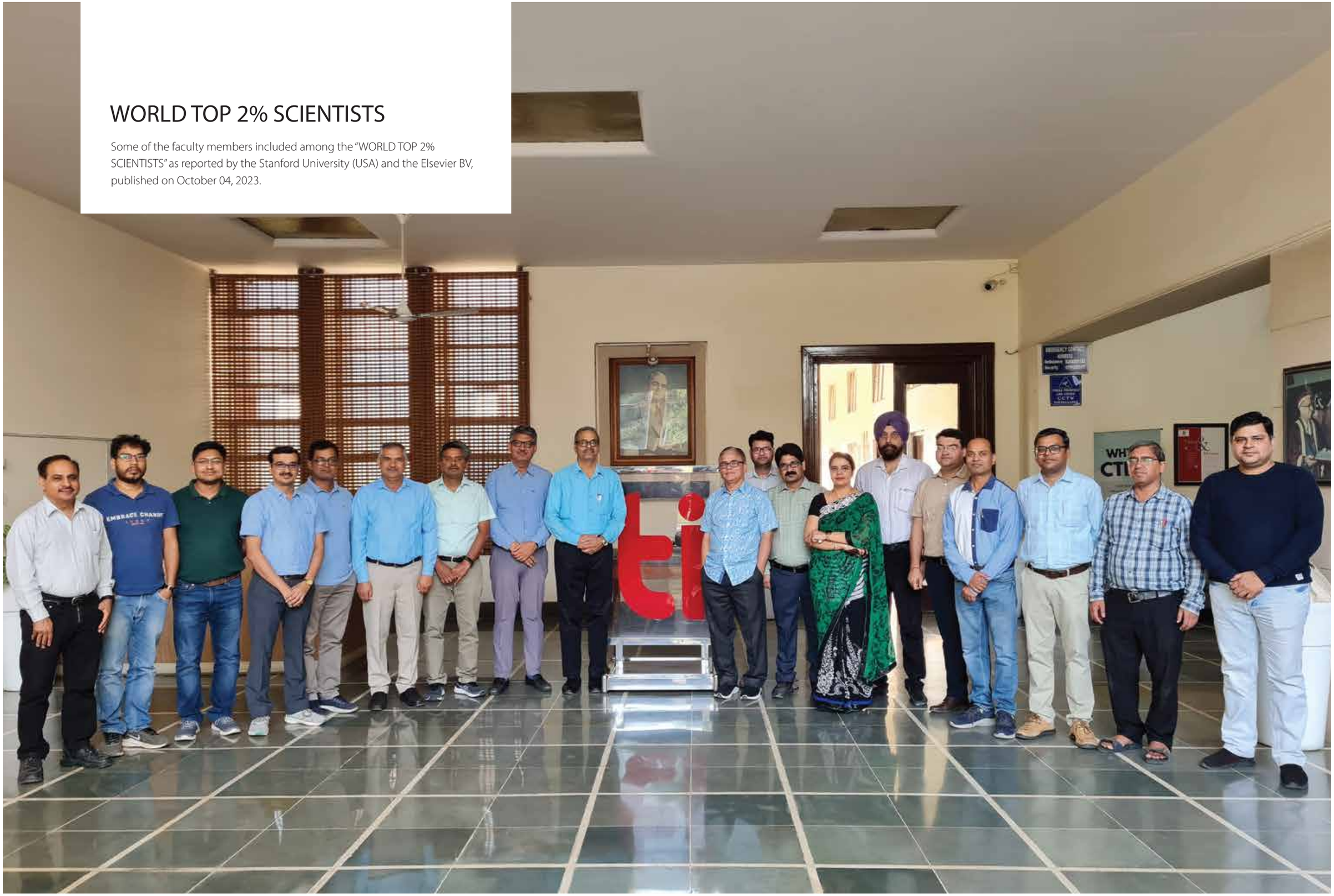
TIET - TAU CENTRE OF EXCELLENCE IN FOOD SECURITY

The Digital villages is a platform for the development, piloting and evaluation of innovative agricultural solutions in real farms and in the hands of real farmers. This initiative seeks to fill the critical and large gap in field based evidence, and address strategic challenges facing agriculture in Punjab, and more broadly, in India and the world. These include conservation of freshwater resources, the use of alternative sources of irrigation, such as waste water, and enhanced precision of the application of water, fertilizer and other chemicals to fields. An emphasis is based on digital data collection and monitoring. The digital village project is based on prolonged and intensive data collection in farms and interaction with farmers, and a partnership between academic researchers, students, private sector companies and farming communities. While different technologies and solutions are often advocated as effective solutions, the digital village project facilitates their actual evaluation on the ground, when operated by real farmers, rather than in controlled settings.

RAM FISHMAN
Tel-Aviv University, Israel

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 on October 04, 2023.



Academic Practices & STUDENT LEARNING

CAPSL (Centre for Academic Pracitices and Student Learning) was started in the year 2016 in collaboration with Trinity College Dublin under the present contemporisation program at TIET. The basic objective of the new direction program is to motivate and train the faculty members of various Academic units is to excel in their teaching by shifting from Teacher centric learning to student centric learning. The program focuses on the professional development of the faculty by training them through various modules, showcase events, engaging the teaching staff in Community of Practices (COP), expert talks etc. After completion of preliminary module, the interested faculty members were sent to Trinity College Dublin for further learning of advanced modules. The faculty members who have completed the advanced modules become the trainers for the trainee faculty

ADVANCED PROGRAM

MODULES OFFERED

- Assessment for Higher Level Abilities of Bloom's Taxonomy
  E-Content & Authoring Tools
  Team work and collaboration
  Designing Effective Course for Significant Learning
  Teaching Philosophy Statement

A total of 45 faculty members of various cadres from various academic units completed this programme in the current academic year.

NEW DIRECTION PROGRAM

MODULES OFFERED

5 Core Modules

- Student Centric Learning
- Outcome Based Approach
- Reflection
- Assessment
- Curriculum

5 Fellow Optional Modules

- Peer Observation of Teaching
- Project based Learning
- Fostering Self-Regulated Learning
- Research Integrated Teaching

Effective Design and Use of Rubrics

- 3 CAPSL Optional modules
- Creativity
- Group work
- Evaluated Teaching

A total of 82 faculty members of various cadres from various academic units are currently undergoing this programme.

Innovation & ENTREPRENEURSHIP

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. During past two years Thapar innovate has received Rs. 130 Lakhs and funded 15 startups in different domains. In 2022, STEP-TIET received another grant of Rs. 125 Lakhs from Startup India Seed Fund (SISF) to fund the startups. Since 2016, it has incubated 42 startups out of which 23 have been funded under different schemes.

MEITY TIDE 2.0 (Incubation)	
Total sanctioned fund: 3 crore Received as on date: 1.73 crore	
Entrepreneur in-residence	4 Lakhs
MVP Program	7 Lakhs

INVEST INDIA SISFS (Acceleration)	
Total sanctioned fund: 3 crore Received as on date: 1.26 crore	
Business Launcher	20 Lakhs
Business Catalyst	30 Lakhs
Business Accelerator	50 Lakhs

SUCCESS STORIES

Minus Zero

Gagandeep Reehal, (CSE 2020-24)

Minus Zero is India's first startup building affordable, fully autonomous vehicles (SAE-Level 4+).

Achievement: Funding 42 Lakhs I **Investment:** Approx 18 Crores

LABELLERR Labeling Made Easy

Puneet Jindal, (Alumni)

A SaaS platform for smart image labeling using computer vision model training.

Achievement: Funding 37 Lakhs I **Investment:** Approx 1 Crore

Akshat Bhatia & team (CSE, ENC, MEE 2020-24)

Computer vision-enabled multi-drone system.

Achievement: Funding 7 Lakhs I **Investment:** Approx 32 Lakhs

Raised
Rs.07cr.
from invest India corporation and Meity startup hub

26 Mentors

15 Corporate partnerships

100+
Employment created

Incubated
40+
startups since 2016

Startups raised external funding of
Rs.18cr.+

Startups published
03
patents

Conference/Workshop

INDUSTRY INSTITUTE INTERFACE (ICube)

School of Energy and Environment, Thapar Institute of Engineering and Technology (TIET) and Punjab Pollution Control Board (PPCB) jointly organized an **Industry Institute conclave "ICUBE, I3"** in January 2023. This mega event was launched by S. Gurmeet Singh Meet Hayer, Hon'ble Minister for Science, Technology and Environment; Sports and Youth Services; and Higher Education Punjab.

There was overwhelming response from the various industries of the Punjab as nearly 300 persons from 150 industries participated in this interface event.

This joint endeavour is aimed to provide scientific solutions by academia from top premier INSTITUTES to various technical challenges faced by the industries across Punjab and near by region.

Why ICube (Industry Institute Interface) for Researchers/ faculties?

ICube (Industry Institute Interface) platform is envisaged to unlock great benefits to academia as well as industry at large.

- Providing one stop solution where the industries will post their technical issues/ problems and Researchers/ experts from academia can propose the solution and pitch at any competitive price (bid price).
- This portal is a great platform for Researchers/ Faculties to use their expertise/ resources on several industrial projects and strengthen their relationship with multiple industries.

OUTCOME-BASED EDUCATION PERSPECTIVES & PRACTICES

TIET organised a two-day National Conference on Outcome Based Education - Perspectives & Practices on the 17th and 18th of April 2023 at its Patiala campus.

Professor K.K. Aggarwal, former Chairman of the National Board of Accreditation and Founder Vice Chancellor of GGS Indraprastha University, Delhi, was the chief guest of the inauguration ceremony. Mr. Apoorve Aggarwal, Head - IT, Tata Consultancy Services, was the guest of honour. The dignitaries, along with Prof. Padmakumar Nair, Director-TIET, Prof. Rajesh Chakrabarti, Director- Dera Bassi Campus, Prof. Ajay Batish, Deputy Director- TIET and Dr. Gurvinder Kaur, Organising Secretary of the conference, inaugurated the event by the lighting of lamps.

In his insightful keynote address, the chief guest, Professor K.K. Aggarwal, stressed the need to replace the old academic content with new and relevant one to match the pace of changing technology so that students acquire contemporary employment skills. Emphasising the faithful implementation of OBE, he stressed the need to develop a road map for the students from entry to exit in an institute and giving freedom to choose the courses as per their carrier interests.

NDP Showcase: The New Directions Program (NDP) equips each faculty member joining TIET with various tools of education technologies like Bloom's Taxonomy, effective classroom teaching, group learning, making and using rubrics in evaluations etc. The NDP, each season, concludes with a showcase event where participant faculty members highlight interventions used during their teachings. The poster entitled "Promoting active learning through thinking classroom" by Divya Sharma (ECED), Mayank Agarwal (ECED), Ovais Shafiq Qadri (BTD), and Sohinee Ganguly (SHSS) was awarded best poster for session 2020-21. For session 2021-22, the poster entitled "A Novel Brain-Function Based Design of Curriculum and Pedagogy (Brainaculm) - A New Educational Approach of 21st Century" by Amit Kumar Trivedi (CSED), Deba Prasad Dash (EIED), Neha Singh (ECED), Niloy Kumar Chakraborty (TSLAS) and Pragya Ranjan Rout (BTD) was awarded the best.

OUTCOME BASED LEARNING PEDAGOGY AT *UNIVERSITY OF JAMMU*

Centre for Academic Practice and Student Learning, CAPSL-TIET Team visited Jammu University to carry out a workshop on Outcome Based Learning Pedagogy. The workshop was conducted over the course of one week and consisted of seminars and hands-on workshops on topics such as the development of Program Outcomes (POs) and Course Outcomes (COs), their mapping with Programme Educational Objectives (PEOs), Bloom's Taxonomy, and assessment techniques. The main aim of the Faculty Development Program (FDP) was to motivate and train faculty members Jammu University to enhance their teaching and learning practices by shifting their focus from teacher-centric learning to student-centric learning.

Furthermore, the Vice Chancellor of Jammu University, Prof. Umesh Rai, felicitated the team for their efforts.

DRUG DISCOVERY FOR THE BEGINNERS

Gene Society of Biotechnology Department had arranged a workshop on 'Drug discovery for the beginners' on 21st March 2023 at Thapar Institute of Engineering and Technology, Patiala. The workshop was conducted by Dr. Saugata Hazra, IIT Roorkee and his team. The workshop provided a hands-on training to the sixty students from B.Tech., and M.Tech. students with the computational methods to drug design and docking to protein receptor.

INSIGHTS INTO THE APPLICATIONS OF HIGH-END INSTRUMENTS FOR CHEMICAL SCIENCES

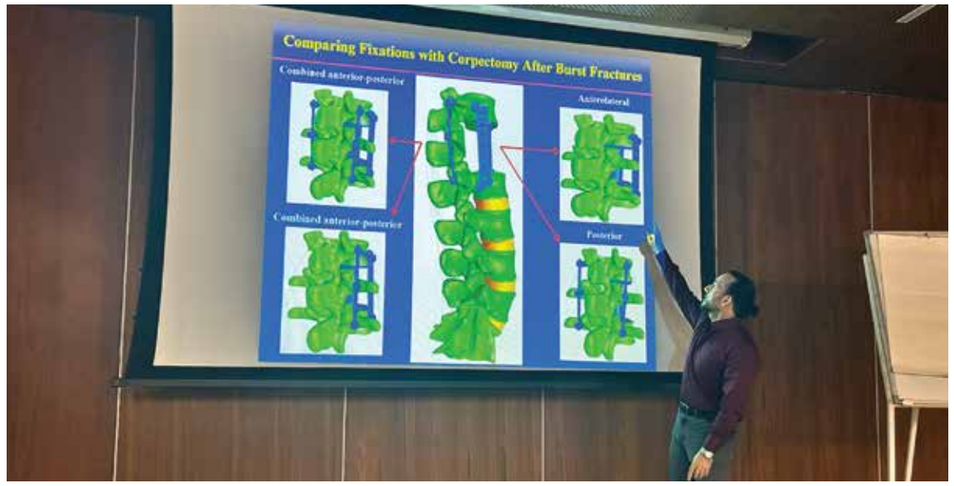
School of Chemistry & Biochemistry and School of Energy & Environment, TIET, Patiala organized an offline DST STUTI ICT seven day's training program on "Insights into the Applications of High-End Instruments for Chemical Sciences" for researchers/faculty members from 21-27 February, 2023. Thirty participants from throughout India were selected by ICT, Mumbai for this program. The training program was focused on the lectures and hands on training of high-end instruments like HRMS, GCMS, HPLC, NMR, ICP etc. used for chemical analysis.

THAPAR SATELLITE PROGRAM

This initiative has been duly acknowledged by Shri Bhagwant Singh Mann, Chief Minister of Punjab. Key concerns of this collaborative endeavours focus on the pollution due to stubble burning and treatment waste in the state of Punjab. The effort made in this direction are highly appreciated by the concerned departments of Govt. of Punjab and future collaborative efforts are envisaged for ThapSat data sharing and its application for problem solving.

VISIT OF FULBRIGHT PROFESSOR

- Dr Francesco Travascio, Associate Professor, from the University of Miami, USA visited TIET as a Fulbright Professor (3rd June-3rd July 2023)
- Organised FDP program on "Soft Tissue Biomechanics and Bio-Transport" (15th June-30th June 2023)
- Academic review of Biomedical Engineering was conducted.
- Planning to set up an orthopedic research centre at TIET.
- Research collaboration with National Institute of Sports.



Outreach
INITIATIVES

EDUCATORS FOR EXCELLENCE

Thapar Institute of Engineering & Technology, and Thapar School of Liberal Arts and Sciences have consistently been leaders in providing excellent education. Our comprehensive outreach efforts are designed to empower students with the knowledge needed to make informed academic decisions. We conduct nationwide seminars, workshops, interactive webinars, offer personalized career counseling at schools, and organize outreach tours to remote areas. We also place significant emphasis on scholarship and financial aid options. These initiatives not only promote research and innovation but also foster a culture of academic exploration.

One of our notable initiatives is 'Educators for Excellence,' an exceptional event that brings together education leaders, school counselors, senior educators, and representatives from Higher Education Institutions to discuss various aspects that will shape the future of academic and multidisciplinary learning. The goal of this initiative is to facilitate discussions with a group of intellectuals on diverse topics of utmost importance in the field of education and learning, fostering a strong community that promotes innovation, sustainability, intellectual humility, and the pursuit of excellence at its core.

This highly anticipated event features distinguished experts who participate in panel discussions on a range of topics. The aim is to provide a platform for thought leaders to exchange ideas and insights on the latest trends and challenges facing the industry. The panel discussions encourage a healthy dialogue on the topic, and we are confident that this will help us achieve our objective of providing valuable insights and perspectives to our audience.

Furthermore, we offer students the opportunity to personally immerse themselves in our campus life and infrastructure. These outreach programs have not only broadened our educational reach but have also enhanced the accessibility of higher education for students from various backgrounds. This proactive strategy has left a profound mark on our higher education environment, fostering a culture of excellence, encouraging academic exploration, and expanding opportunities for deserving students.

SCHOOL OUTREACH IN INDIA AND UAE

Thapar Institute of Engineering, Technology, Thapar School of Liberal Arts, and Sciences have been at the forefront of education excellence. Our extensive outreach efforts aim to empower students with knowledge to make academic decisions. We conduct nationwide seminars and workshops, interactive webinars, offer personalized counseling on career desks at schools and go on outreach tours to remote areas, and emphasize scholarship and financial aid options. These initiatives also promote research and innovation, fostering a culture of academic exploration.

Additionally, we invite students to experience the infrastructure and campus life firsthand. By reaching out to schools and students across the nation through these initiatives, we have not only expanded our educational reach but also enabled students from diverse backgrounds to access higher education. This proactive approach has left a significant impact on our higher education landscape, promoting a culture of excellence, academic exploration, and making education more accessible to deserving students.

Student's ACHIEVEMENTS

- Team Fateh is one of the best Student Formula Teams in India. In the past two years, Team Fateh won top positions in all the *national events held at Buddh International Circuit, Greater Noida and Kari Motor Speedways, Coimbatore.* In July 2023, Team Fateh (Car No. 44) achieved the following awards Team won 5 trophies and Rs. 2 Lakhs in cash awards.

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

- Our student Bulbul from Thapar School of Liberal Arts & Sciences received 4th position in India & **1st position** in Punjab in the *Commonwealth Artists Competition.*

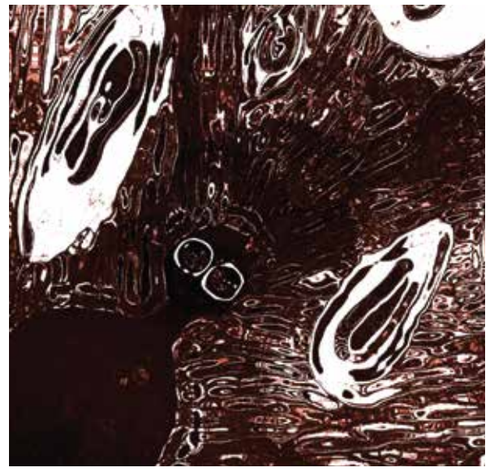
- We are proud to announce that three undergraduate students of batch 2021-25 have become *Kaggle Experts*: Iqman Singh Bhatia, Bhavleen Kaur, and Eishkaran Singh.

- Vansh Gehlot, pursuing BE Mechatronics at Thapar Institute of Engineering & Technology, has been selected as a Mentor at the *Worldwide AI Hackathon.*

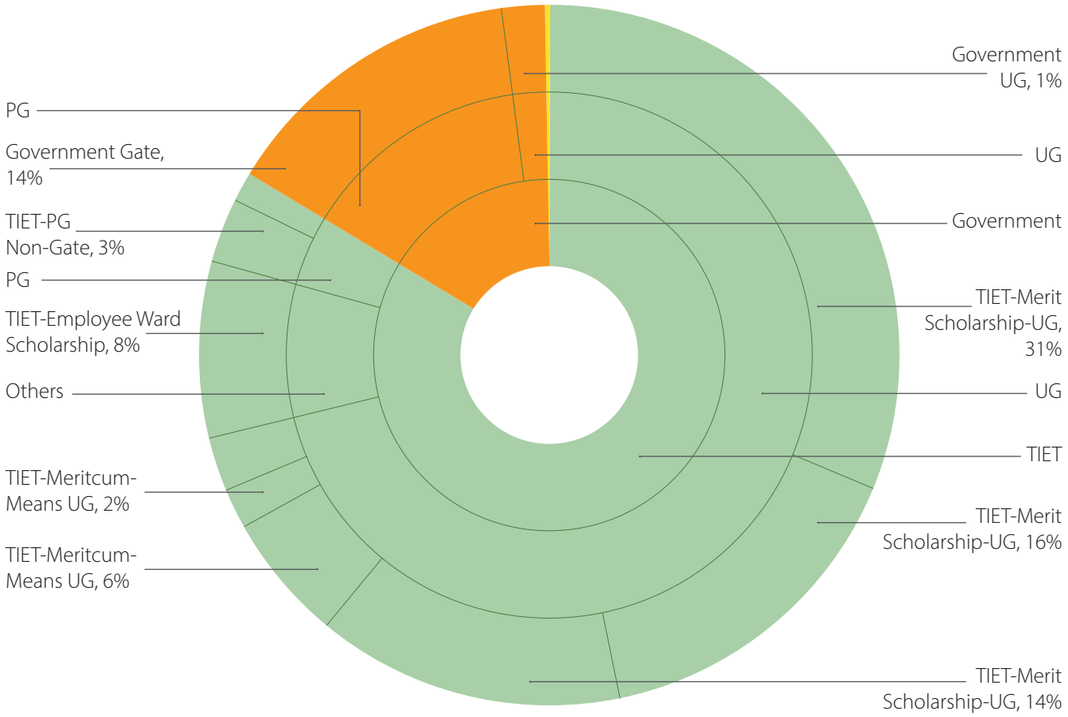
- Thapar Institute students, Akshat Jaimini, Harishankar Kumar, Daksh Rathore, and Abhimanyu Raghuvanshi, have been selected into *Google Summer of Code (GSoC)* program, a prestigious opportunity for students to work on open-source projects and learn from industry experts.

- Thapar Institute is delighted to announce that our talented dancers from NOX DANCE SOCIETY have once again showcased their extraordinary skills and secured second position at the prestigious dance competition held at *UTKANSH 2023*, NIT Jalandhar.

- Eishkaran Singh, student of the second-year COE branch, bagged the second position in the competition of *PixelMind AI* held at *Paradox 2023* in the Indian Institute of Technology Madras, along with a cash prize of 50K, under the guidance of Dr Seema Bawa, Dr Sachin Kansal, and Dr PS Rana.

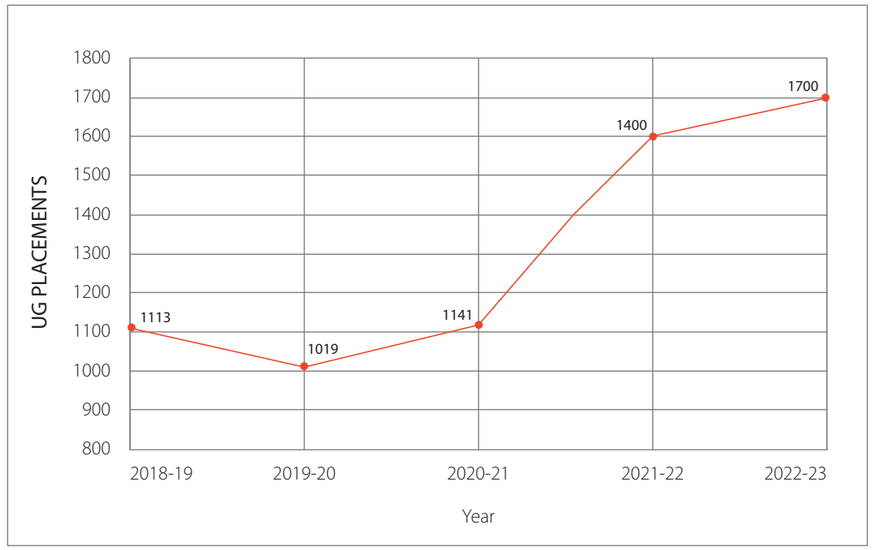


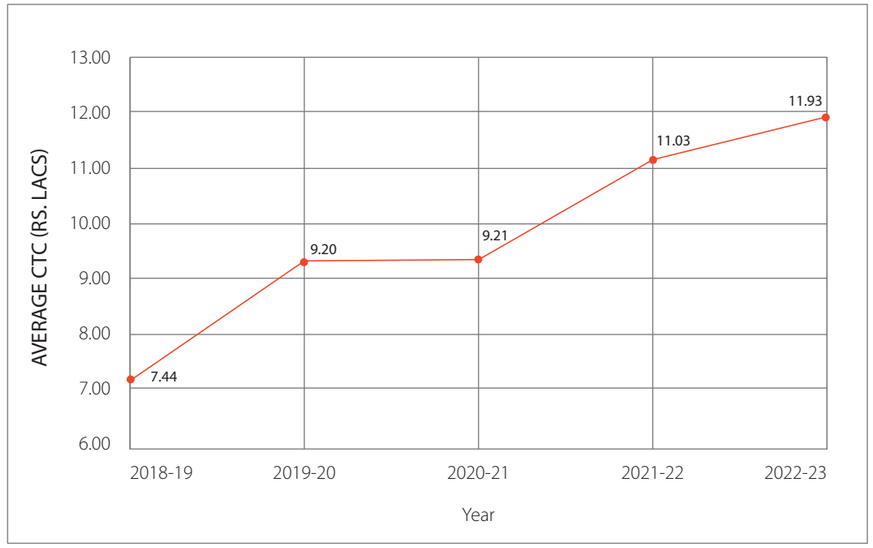
SCHOLARSHIPS



Rs. 34.19 Crore

PLACEMENTS





MEDALS

Jappreet Kaur

S. Ranbir Singh Memorial Medal

Snehil Mittal

President Medal and Prof. V. Rajaraman Computer Science/Engg. Medal

Puneet Singh

S. Ram S. Sidhu Memorial Medal

INSTITUTE MEDALS

BTech Bio-Medical Engineering **Sanchita**	BTech Biotechnology **Vimarishi Koul**	BE Chemical Engineering **Bhavya Narang**
BE Civil Engineering **Manoj Hari**	BE Computer Engineering **Snehil Mittal**	BE Electrical Engineering **Puneet Singh**
BE Computer Science & Engineering (Dera Bassi Campus) **Dhairya Aggarwal**	BE Computer Science & Engineering (Patiala Campus) **Arpit Arora**	BE Computer Science & Business Systems **Tanya Srivastava**
BE Electronics & Communication Engineering **Kunal Badgali**	BE Mechatronics Engineering **Rajat Arora**	BE Mechanical Engineering **Ribhav Mediratta**
BE Electronics (Instrumentation & Control) Engineering **Sahiba Kaur**	BE Mechanical Engineering (Production) **Tushar Goel**	BE Electronics & Computer Engineering **Ankush Singla**
MCA **Naman Aggarwal**	M.Sc. Biotechnology **Sheba Chani**	M.Sc. Chemistry **Charu**

M.Sc. Bio-Chemistry **Komal Verma**	M.Sc. Mathematics **Yashika**	M.Sc. Physics **Pretty Singla**
M.Sc. Mathematics & Computing **Muskan Kapila**	M.A. Psychology **Sukhman Preet**	MBA **Nishtha Vij**
MBA Business Analytics And Big Data **Akkshit Kumar**	M.Tech VLSI Design **T Raja Aadhithan**	M.Tech Biotechnology **Anjali Kanwar**
M.Tech Environmental Science & Technology **Shradha Sharma**	M.E. Structural Engineering **Roshan Shah**	M.E. Infrastructure Engineering **Gurjot Singh**
M.E. Software Engineering **Jeelani Asif**	M.E. Computer Science & Engineering **Harsh Gupta**	M.E. CAD/CAM Engineering **Aditya Pandey**
BE-MBA (Dual Degree) **Abhinav Garg**	BE-MBA (Dual Degree) **Nandini Gupta**	BBA **Simran Johal**
BA **Ishika Kaushik**		

SPECIAL MEDALS

Director Special Medal **Kartik Arora**	Director Special Medal **Garvita Bhateja**
Director Special Medal **Shrey Jain**	Director Special Medal **Disha Malhotra**

New
INFRASTRUCTURE

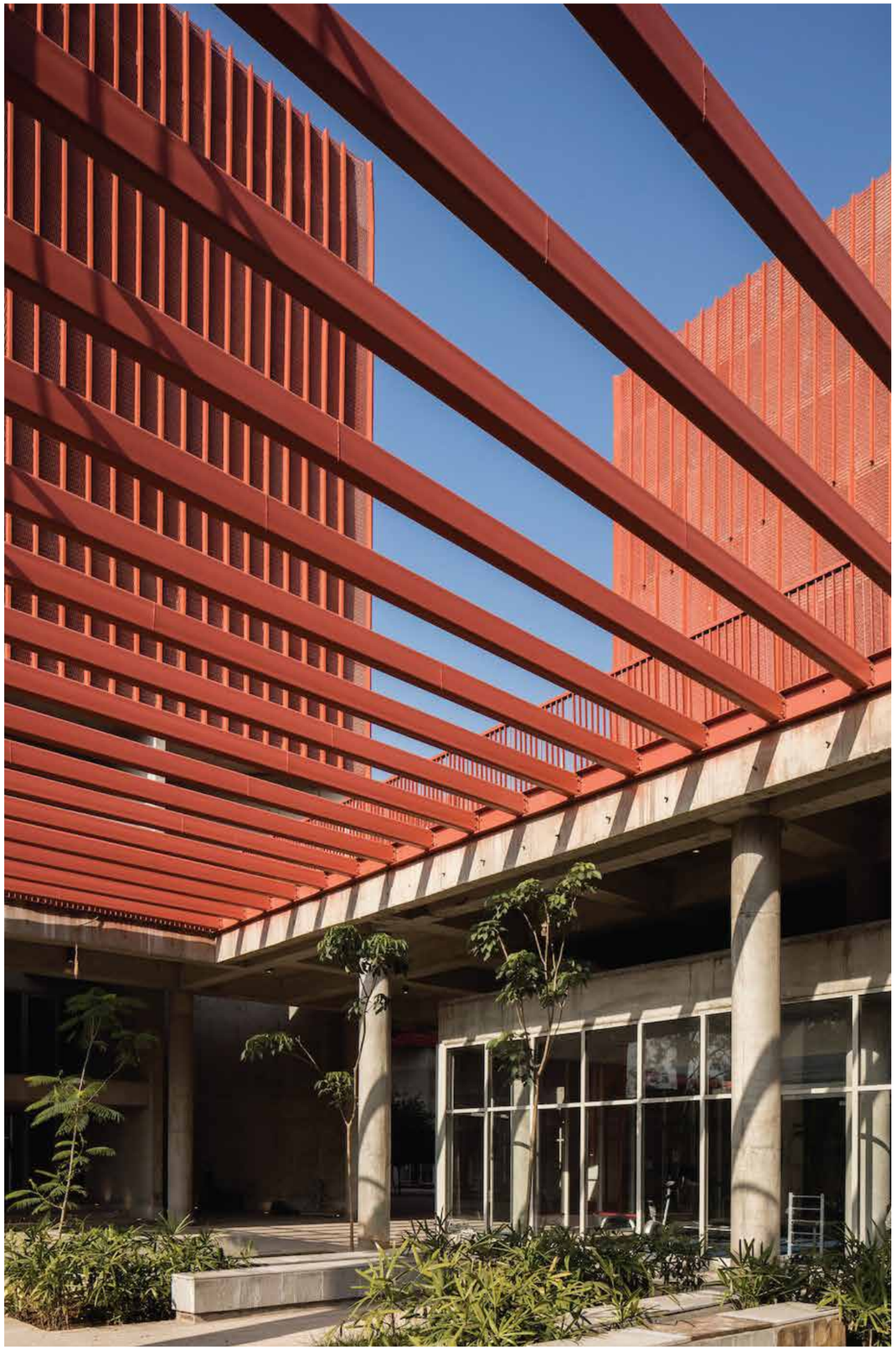










Photos by : Manoj Arya

Financial STATEMENTS

YEAR ENDED 31ST MARCH, 2023

SN	PARTICULARS	For Year ended 31.03.2023	For Year ended 31.03.2022
A	INCOME	₹ ('000)	₹ ('000)
1	Tuition Fee	27,81,147.235	22,60,017.460
2	Other Academic Fee	3,15,058.156	2,84,107.859
3	Hostel Income	10,06,146.595	3,77,426.699
4	Interest income	82,566.641	58,986.835
5	Income from facilities	7,008.273	3,788.730
6	Income from Enterprise activities	11,153.865	11,014.596
7	Miscellenous income	76,598.655	70,001.591
8	Excess of expenditure over income	1,31,122.872	6,21,359.477
	Total	**44,10,802.292**	**36,86,703.246**

SN	PARTICULARS	For Year ended 31.03.2023	For Year ended 31.03.2022
B	EXPENDITURE	₹ ('000)	₹ ('000)
1	Establishment Expenses	18,32,201.660	15,80,463.041
2	Scholarship Expenses	3,41,877.890	2,96,728.304
3	Contribution to Projects/Core	44,133.668	26,383.663
4	Student activities & Welfare expenses	13,915.813	8,532.793
5	Facility expenses	3,878.160	3,348.470
6	Other Operating Expenses	11,88,709.426	8,90,157.823
7	Depreciation	8,71,715.527	7,52,706.901
8	Corporate Social Responsibility exp	-	823.958
9	Provisions for Gratuity	69,073.561	73,964.231
10	Provisions for Leave Encashment	45,296.587	53,594.062
	Total	**44,10,802.292**	**36,86,703.246**

Leadership
APPOINTMENTS

PROF. PADMAKUMAR NAIR
Joined as Director, TIET on January 13, 2023

PROF. RAJESH CHAKRABARTI
Joined as Director (Derabassi Campus) on January 15, 2023