Conference Report

INTERNATIONAL CONFERENCE ON TRENDS AND INNOVATIONS IN SCIENCE AND ENGINEERING: BRIDGING THE INDUSTRY-ACADEMIA INTERFACE
February 20 – 22, 2025

The International Conference on Trends and Innovations in Science and Engineering: Bridging the Industry-Academia Interface (TISE CON 2025) commenced on February 20, bringing together a distinguished assembly of researchers, industry leaders, and policymakers for a transformative three-day event. Organized by the Department of Bioengineering, Faculty of Engineering & IT, and Integral Startups Foundation, in association with AFSTI Lucknow Chapter and the Indian National Young Academy of Sciences, New Delhi, the conference is hosted in collaboration with esteemed academic partners, including Bundelkhand University, Jhansi, M.P., India, and prestigious international institutions such as the Tashkent Institute of Chemical Technology, Uzbekistan; Institute of Microbiology, Republic of Uzbekistan; King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand; Al-Farabi Kazakh National University, Kazakhstan; and Hamad Medical Corporation, Qatar.

The event aims to bridge the gap between science, engineering, and society, fostering a multidisciplinary dialogue that drives innovation and collaboration. Under the theme "Innovation Across Disciplines and Borders: Fostering a Global Perspective to Build a Skilled Workforce for a Sustainable Tomorrow," TISE CON 2025 is set to spark groundbreaking discussions on cutting-edge advancements in energy, medicine, and environmental sustainability while promoting global partnerships to address industry-specific challenges.

The conference structure is designed to facilitate knowledge-sharing and industry-academia synergy, featuring keynote addresses, panel discussions, technical sessions, and networking opportunities. The inaugural ceremony was graced by distinguished dignitaries, including leading academicians, industry stalwarts, and policymakers. Notable attendees included Prof. Syed Waseem Akhtar, Hon'ble Founder & Chancellor, Integral University, Lucknow; Padma Shri Prof. G.D. Yadav, Former Vice-Chancellor, ICT Mumbai; Prof. Syed Nadeem Akhtar, Hon'ble Pro Chancellor, Integral University, Lucknow; Prof. Anand Kumar Singh, Hon'ble Vice

Chancellor, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur, UP; Prof. Sunil K. Khare, Vice Chancellor, NSCBIHL Central Deemed University, Andaman & Nicobar and Director, IISER Kolkata; Dr. Zebo Babakhanova, Tashkent Institute of Chemical Technology, Uzbekistan; and CA Rishabh Kumar Sawansukha, CEO, Fruz India Private Limited.

Prof. Alvina Farooqui, Head, Department of Bioengineering and Organizing Chair of TISE CON 2025, delivered the welcome address, emphasizing the importance of bridging the industry-academia gap, transforming innovative ideas into scalable solutions, and leveraging technology for societal betterment. She highlighted the significance of curiosity, creativity, and commitment (3Cs) in nurturing scientific excellence and holistic development.

Following this, Prof. Mohd. Haris Siddiqui, Registrar, Integral University, captivated the audience with a compelling narrative of the university's evolution from a humble educational institution to a globally recognized center for learning and research. A special biopic trailer on Hon'ble Founder & Chancellor Prof. Syed Waseem Akhtar was showcased, offering insights into the university's transformative journey. Dr. Nida Fatima, Executive Director of Integral Startups Foundation (ISF), introduced ISF as one of Uttar Pradesh's leading non-profit incubation centers, spotlighting its contributions to nurturing successful startups such as Kosh, NuttyVillage, and Pharmoxa Agri Services.

In his keynote address, Hon'ble Chancellor Prof. Syed Waseem Akhtar underscored the critical role of science and technology in societal progress, addressing both the potential and ethical challenges of Artificial Intelligence (AI). He emphasized the need for students to develop not only technical expertise but also moral integrity and a strong ethical foundation to lead responsibly in an increasingly digitalized world. With this inspiring message, he officially declared the conference open. The conference souvenir, featuring **250** abstracts from global contributors, was unveiled, followed by a felicitation ceremony in which dignitaries were honored with university mementos and handcrafted shawls made by ISF-incubated startup Kosh.

As TISE CON 2025 continues, it remains a pivotal platform for fostering innovation, collaboration, and sustainable solutions. A Total of **633** participants participated in TISE CON

2025 out of which **59** participants were international. With a focus on real-world applications of scientific advancements, this conference is poised to leave a lasting impact on academia and industry, paving the way for a technologically empowered and globally connected future.

Higher authorities of Integral University and delegates entering the venue of the international conference, TISE CON 2025

Audience in the central auditorium during the TISE CON 2025 inaugural event

Dr. Sadia Halima anchoring the inaugural session of the conference

Prof. Alvina Farooqui proposing the welcome address and briefing the audience about the conference

Felicitation of chief guest Padma Shri Prof. GD Yadav by Prof. SW Akhtar, Chancellor, Integral University

Releasing of suvenior by delegates during the event

Delegates in the central auditorium during the national anthem

Group photograph after the inaugural session

SESSION REPORTS

A total of four keynote sessions, six plenary sessions, four oral sessions, two industry-academia panel discussions, one session on industry experts and one session on student competition were held along with one each of oral and poster session. The briefing of all the sessions is as follows:

Panel Discussion 1:

"Building a Skilled Workforce for Viksit Bharat@2047: Education and Training for the Sustainable Tomorrow"

A thought-provoking panel discussion on "Building a Skilled Workforce for Viksit Bharat@2047: Education and Training for a Sustainable Tomorrow" explored key subthemes, including bridging the gap between science, engineering, and society; cross-disciplinary innovations in energy, medicine, and environment; and fostering global collaboration to address industry challenges. The session, moderated by Dr. Amjad Hussain, Professor at the Cancer Research Institute (CRI), Dehradun, featured valuable insights from Hon'ble Vice Chancellor, Integral University, Prof. Javed Musarrat, along with other eminent panelists. Discussions emphasized the need for curriculum modernization to meet industry demands, the promotion of apprenticeship programs, soft skill development for students and educators, preventing brain drain by fostering local research and employment opportunities, and increasing government support for higher education and scientific research. International panelists commended India's significant contributions to the field of science and technology, further strengthening global academic and industrial ties. The panel discussion was summarized and eloquently concluded by Prof. Furqan Qamar, Chief Advisor to Hon'ble Chancellor, Integral University.

A special vote of thanks was delivered by Prof. Iffat Zareen Ahmad who thanked the speakers for their valuable time and sharing their views related to recent trends and innovations in science and engineering. This session concluded with national anthem.

Delegates and audience during the open discussion moderated by Dr. Amjad Hussain

Dr. Amjad Hussain moderating the open discussion session with delegates

Keynote Session 1:

Padma Shri Prof. G.D. Yadav's lecture on **"3P: Patent, Publish, and Prosper"** emphasizes the critical role of academic research in driving innovation, economic growth, and societal impact. He highlights how researchers can maximize the value of their work by securing patents, publishing high-impact papers, and translating their discoveries into real-world applications. According to him, patents protect intellectual property, foster industry collaborations, and enable commercialization, while publications contribute to global knowledge, enhance academic reputation, and inspire further research. Striking the right balance between patenting and publishing is essential for ensuring both scientific advancement and economic benefits.

Prof. Yadav also underscores the importance of fostering a research ecosystem that encourages interdisciplinary collaboration, industry partnerships, and technology transfer. He stresses that universities and research institutions should support faculty and students in filing patents and publishing in reputed journals, ultimately leading to greater recognition, funding opportunities, and technological advancements. By following the **3P approach**, researchers can create a lasting impact, bridging the gap between academia and industry while contributing to national and global development.

Padma Shri Prof. GD Yadav delivering his keynote address on “3P: Patent, Publish, and Prosper – Creating Value from Academic Research and Innovation”

The view of central auditorium during Padma Shri Prof. GD Yadav keynote talk

Felicitation of chief guest Prof. GD Yadav with university memento presented to him by higher authorities of Integral University

Plenary Session 1: Nurturing the incubations

"Transforming Life Sciences Start-ups: The Power of Collaboration Between Academia and Industry"

The session was honored by the presence of distinguished professionals, including Dr. Nida Fatima, Executive Director at ISF, Integral University, Lucknow, who served as the Session Chairperson. Additionally, Dr. Parthasarathi Ramakrishnan from IITR & AFSTI, Lucknow Chapter, co-chaired the session, bringing his vast experience and expertise to the discussion. The Rapporteur of the session was Dr. Noor Alam, Incubation Manager, Integral University, Lucknow. The session was well coordinated by Dr. Amna Siddiqui from Department of Commerce, Integral University, Lucknow.

Dr. Amjad Hussain, a professor at the Cancer Research Institute (CRI) and co-founder of Canfinis Therapeutics, delivered an insightful talk on **"Building Successful Biotech Startups in Oncology and Nutrition".** He shared his entrepreneurial journey, emphasizing the essential steps in establishing a thriving biotech company. Dr. Hussain highlighted the importance of problem-solving, innovation, and strategic business planning in biotechnology. He also discussed the contributions of pioneering entrepreneurs like Robert Langer and the role of diversity, showcasing successful women entrepreneurs in the field. Using case studies from companies like Apple and Starbucks, he illustrated key business principles, including market assessment, pricing strategies, branding, and strong channel partnerships.

Dr. Hussain also introduced **ULO Labs**, a venture focused on longevity research, and **The Food Project**, an initiative involving students in biotech entrepreneurship. He stressed the significance of investor engagement, emphasizing that a well-structured Research, Product, and Revenue (RPR) model is crucial for attracting funding. Addressing key financial considerations, he guided aspiring entrepreneurs on funding strategies, ownership stakes, and effective negotiations with investors. Concluding with an inspiring message, Dr. Hussain encouraged students to take action without waiting for the "perfect time," reinforcing that entrepreneurship is an opportunity to create impact and drive innovation in biotechnology.

Following this, CA Rishabh Kumar Sawansukha (CEO, Fruz India Private Limited) delivered an insightful session on **"Idea 2 IPO – Future of AI in Food Technology, Community Commerce,**

and Quick Service Restaurants (QSR) x Quick Commerce," emphasizing the transformative role of artificial intelligence in shaping the food industry. He explored how AI-driven innovations are revolutionizing food production, supply chain management, and customer experience by enabling hyper-personalized food choices. Sawansukha discussed the growing synergy between QSR and quick commerce, highlighting how AI-powered platforms optimize delivery systems, reduce waste, and enhance efficiency. He also shed light on **community commerce**, where consumer engagement, social influence, and data-driven insights are driving purchasing behaviors, fostering stronger brand connections, and reshaping the future of food retail.

A major focus of the discussion was the **"Recipe for Success"** in the hyper-personalized food industry, where AI tailors menu recommendations based on individual preferences, dietary restrictions, and real-time demand analysis. Sawansukha illustrated how startups and established food tech companies are leveraging AI to create predictive analytics models, ensuring better customer satisfaction and business growth. He also provided key insights on navigating the journey from **idea to IPO**, outlining strategies for scaling food-tech businesses, securing funding, and maintaining profitability in an evolving digital landscape. Concluding on an inspiring note, he urged aspiring entrepreneurs to embrace AI-driven innovations, harness data analytics, and capitalize on emerging trends to build the future of food commerce.

Planary session I was chaired the Dr. Nida Fatima

Dr. Amjad Hussain, Cofounder: Canfinis Therapeutics, during his insightful talk on "Transforming Health: Building Profitable Biotechnology Startups in Oncology and Nutrition"

CA Rishabh Kumar Sawansukha, CEO, Fruz India Private Limited, receiving the University memento from Registrar Prof. Haris Siddiqui after his talk

Panel Discussion 2:

Nurturing the incubations-transforming life sciences startups: The power of collaboration between academia and industry & From "Lab to Market - Commercializing Academic Research"

The panel discussion, moderated by **Major Mohd. Ali Shah** and **Prof. Rajiv Ranjan**, Dean of Integral Business School at Integral University, brought together experts from academia and industry. The panel aimed to identify key challenges in bridging the gap between research and industry while paving the way for startups and innovative business solutions. **Major Shah** initiated the discussion, while the session was efficiently coordinated by **Dr. Orooj Siddiqui**. The Rapporteur of the session was **Prof. Asma Farooq.**

Prof. (Dr.) Smita Lele opened the discussion by sharing insights on economic viability for sustainability, emphasizing the importance of financial resources (Vitamin M) and affordable products. **Mr. Yawer Ali Shah** discussed the essence of a true startup, highlighting the need for a strong vision and a well-defined mission to solve global problems, along with the role of corporate social responsibility in job creation. **Dr. Amjad Hussain** addressed the debate between pursuing a job or entrepreneurship, explaining that while employment provides security and learning, a well-planned and passionately executed business can be a rewarding endeavor. **Prof. Sunil K. Khare** elaborated on how education shapes entrepreneurs by identifying gaps, which has led to the rise of unicorn startups. **Prof. (Dr.) Shazeb Haider** discussed cancer treatment, noting that while some cancers are curable, others depend on lifestyle factors and require further research. **Dr. Salman Hashmi** reflected on COVID-19 treatment methods, where trial-and-error approaches played a crucial role due to the absence of a standard treatment.

Dr. Parthasarthy stressed the importance of **incubation centers** in supporting startups, particularly in tech adoption and market penetration. **Mr. Nilesh Lele** emphasized that success is a journey, requiring technological readiness and business risk assessment. **CA Rishabh Kumar Sawansukha** highlighted the efficiency of **quick commerce** in saving time and money for businesses. **Dr. Rajiv Ranjan** underscored the value of **curricular breaks and sabbaticals** to encourage students in entrepreneurial pursuits, citing an example of a student launching an **affiliate marketing startup**. **Dr. Saurabh Singh** discussed the **importance of identifying**

scalable business ideas in medical research, leveraging AI for categorized research and effective problem-solving.

Key Takeaways:

1. Bridging the Research-Industry Gap: Strengthening collaboration between academia and industry is crucial for effective commercialization.

2. Funding & Support: Access to mentorship, financial support, and infrastructure plays a pivotal role in bringing research innovations to market.

3. Intellectual Property Management: Proper handling of patents and IP rights is vital for safeguarding and monetizing innovations.

4. Entrepreneurial Mindset: Encouraging researchers to think entrepreneurially can drive commercialization and foster innovation.

5. Government Policies & Initiatives: Supportive policies and programs can significantly accelerate research commercialization.

The discussion highlighted both the challenges and opportunities in transforming research into viable business ventures. By implementing these insights, academia, industry, and policymakers can build an ecosystem that nurtures innovation, entrepreneurship, and economic growth.

Dr. Nida Fatima anchoring the panel discussion session of the event

Major Mohammad Ali Shah moderating the panel discussion during TISE CON 2025

Pro-Chancellor Dr. Syed Nadeem Akhtar and Mrs SW Akhtar honouring the moderator of the session, Major Mohammad Ali Shah

Keynote Sessions 2 and 3:

The second day of the conference commenced with an insightful keynote session, chaired by Prof. Wahajul Haq, Dean of Research & Development at Integral University, and co-chaired by Prof. Snober S. Mir, Head of the Department of Biosciences at Integral University, with Dr. Andleeb Khan serving as the Rapporteur. The first keynote address of the session was delivered by the esteemed speaker **Prof. Smita S. Lele** from the Institute of Chemical Technology (ICT), Mumbai, a pioneer in food technology with over four decades of research experience in sustainable agro-produce processing. Beginning her tenure at ICT Mumbai in 1986 as a Professor in Food Engineering and Technology, she later served as Director of ICT's Marathwada Campus in Jalna and is now the Emeritus Professor of Eminence at ICT Mumbai. The title of her talk was **"Sustainable technologies for small scale agri produce processing".** Prof. Lele emphasized a holistic approach to food utilization, highlighting that food and pharmaceuticals are closely linked, as valuable nutraceutical and pharmaceutical products can be derived from food waste. She shared innovative research applications such as transforming rice bran and jackfruit seeds into nutritious cookies, developing ash gourd wax for natural strawberry coating, utilizing fruit peels for reactive dye adsorption, and extracting biomolecules from defatted seed cakes of *Nigella sativa* and *Lepidium sativum*. She also showcased her work on a *Trichoderma viridae*-based biopesticide and its effectiveness in Chilli plantations. Highlighting the three critical aspects of food product development—Bioavailability, Bioaccessibility, and Bioactivity, she stressed the importance of inclusive growth, ensuring that farmers, processors, consumers, and society as a whole benefit from food innovations. She underlined that the ideal food product should be healthy, tasty, convenient, and affordable. Showcasing her research-to-market success, she presented approved food products under the brand names JustSip for liquid food products and BigMeal for ready-to-eat wet food products, both of which aim to provide nutritional and therapeutic benefits. Her session highlighted the transformative potential of food technology in tackling nutritional challenges and promoting environmental sustainability, bridging the gap between research and real-world applications. With her vision of empowering farmers and small-scale food processors, she continues to inspire future food technologists to develop innovative, sustainable, and economically viable solutions.

The next keynote lecture was delivered by **Prof. Mohd Jawaid**, Professor in the Department of Chemical and Petroleum Engineering (COE), United Arab Emirates University, Al Ain, UAE. His lecture, titled "**Waste to Wealth: Biomass Conversion to Sustainable Packaging Materials**," shed light on the urgent need to transition from plastic-based packaging to biodegradable alternatives. Prof. Jawaid began by highlighting the detrimental environmental impact of plastic packaging, stressing the critical need for affordable and innovative biodegradable packaging solutions. He emphasized the dual benefits of such materials—not only do they help enhance shelf-life performance and reduce food loss across the supply chain, but they also contribute to broader environmental sustainability by minimizing landfill waste and reducing dependence on chemical-based products. Using engaging visuals, videos, and graphics, he demonstrated the entire production process, covering pulverization, the use of holding tanks, and pulp molding. He showcased the final products developed through pulp molding, proving that they are comparable in quality and functionality to commercially available TESCO trays. Additionally, he presented his research on the production of composite sheets using palm waste and biopolymers, further expanding the scope of sustainable packaging solutions. A key highlight of his research is the utilization of oil palm waste for the production of biodegradable packaging materials, branded as SafeBioPacks.

Delving into material science, Prof. Jawaid discussed the creation of biocomposites and bionanocomposites by integrating natural fibers, biopolymers, and nanomaterials. These materials, he explained, offer desirable mechanical and thermal properties, making them viable alternatives to conventional plastic-based packaging. To ensure widespread adoption and commercialization, Prof. Jawaid introduced the audience to various international standards for compostable and biodegradable packaging, such as EN13432, Vincotte, and DINCERTCO. He emphasized the importance of obtaining these certifications to facilitate market entry and global acceptance of sustainable packaging solutions. Encouraging the next generation of researchers, he urged students to explore this promising field, emphasizing that India holds significant potential for international investment and innovation in sustainable packaging technologies. To inspire further, he introduced his company, FIBRESTRONG, which is dedicated to pioneering advancements in biodegradable packaging, motivating students to contribute to this transformative industry.

Prof. Jawaid's lecture was not only insightful and forward-thinking but also a call to action for students, researchers, and industry stakeholders to work collectively towards a greener, more sustainable future in packaging technology.

Prof. Smita S. Lele from ICT Mumbai delivering her keynote address on "Sustainable technologies for small scale agri produce processing" in the central auditorium

Prof. Smita S. Lele receiving the honour by organizing committee members

Prof. Mohammad Jawaid from United Arab Emirates University in Al Ain, UAE delivering his keynote talk in the central auditorium

Prof. Wahajul Haq and Prof. Alvina Farooqui felicitating Prof. Mohammad Jawaid

Plenary Session 2: Sustainability and Green Technologies (Green/Blue Biotechnology)

Dr. Jayati Trivedi, a former senior scientist at the Indian Institute of Petroleum in Dehradun, delivered a comprehensive lecture on the promise and challenges of biofuels as a sustainable energy source. The discussion focused on the potential benefits of biofuels while addressing significant hurdles that must be overcome for their successful implementation.

She emphasized that biofuels can significantly reduce greenhouse gas emissions and enhance energy security by diversifying energy sources. Moreover, the biofuel industry has the potential to create jobs in rural areas, providing farmers with new income streams through the cultivation of biofuel crops. This economic boost can lead to enhanced rural development and energy independence. Advancements in biofuel technology, particularly second-generation biofuels that utilize non-food biomass, can help mitigate the "food versus fuel" debate. These innovations aim to produce biofuels without competing with food crops for arable land.

Dr. Trivedi emphasized that while biofuels hold great promise for sustainable energy solutions, addressing the associated challenges is essential for their successful integration into the global energy landscape. Current technologies for biofuel production face challenges related to scalability, cost-effectiveness, and efficiency. Ongoing research is necessary to address these technological barriers and improve the economic viability of biofuels. A multi-faceted approach involving technological advancements, policy support, and sustainable agricultural practices is necessary to harness the full potential of biofuels while minimizing their environmental impact.

Prof. Charles Brennen, Chief Scientific Director at the Food & Nutrition Innovation Hub, RMIT, Australia, delivered an insightful lecture on the therapeutic effects of mushrooms on physiology, nutrition, and psychology, titled "**Mushrooms and their therapeutic effects on physiology, nutrition and psychology-harnessing nature's power**". The presentation explored the multifaceted benefits of mushrooms and their potential applications in health and wellness.

He emphasized that mushrooms are rich in essential nutrients, including vitamins (such as B vitamins and vitamin D), minerals (like selenium and potassium), and antioxidants. These components contribute to overall health by supporting immune function, promoting heart health, and enhancing metabolic processes. Regular consumption of mushrooms can help lower cholesterol levels and reduce the risk of chronic diseases such as cancer. Mushrooms contain

bioactive compounds that have been shown to exhibit anti-inflammatory and antioxidant properties. Additionally, certain mushrooms have been linked to improved gut health by acting as prebiotics that stimulate beneficial gut bacteria. Prof. Brennen highlighted the emerging research on psilocybin-containing mushrooms, known for their psychoactive properties.

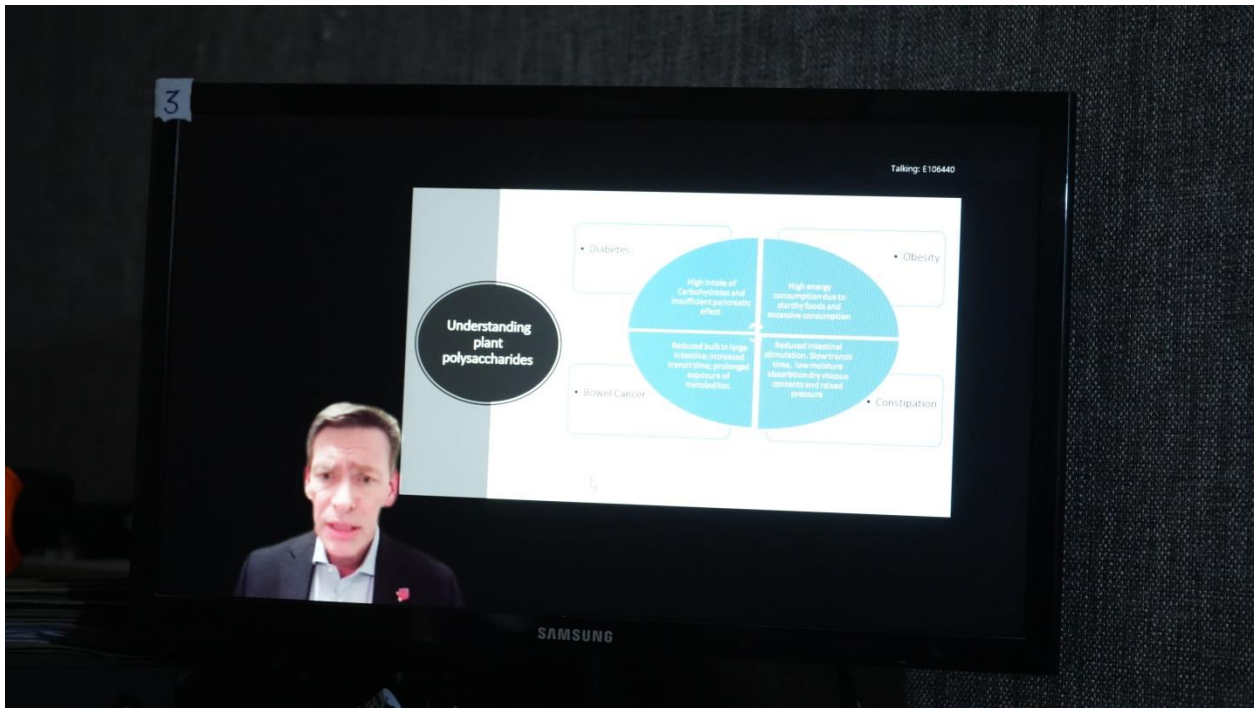
While the therapeutic potential of mushrooms is significant, Prof. Brennen also addressed several challenges. Despite promising findings, more extensive clinical trials are needed to fully understand the long-term effects and optimal dosages of psilocybin and other bioactive compounds found in mushrooms. By harnessing the power of mushrooms through continued research and innovation, there is an opportunity to develop effective therapeutic strategies that could significantly improve quality of life for many individuals facing health challenges.

Dr. Sandeep Sharma's lecture on cultivated meat technology presented a comprehensive overview of how this innovative approach aligns with the One Health concept, which emphasizes the interconnectedness of human, animal, and environmental health. He emphasized that cultivated meat, also known as cultured or cell-based meat, is produced by cultivating animal cells in a controlled environment rather than through traditional livestock farming.

Dr. Sharma also emphasized that cultivated meat technology aligns with the One Health approach by addressing critical issues at the intersection of human health, animal welfare, and environmental sustainability. By reducing antibiotic use and minimizing exposure to zoonotic pathogens, cultivated meat can contribute to healthier food systems. This technology reduces the need for raising animals for food, thereby alleviating ethical concerns related to animal suffering. The reduced resource consumption and lower emissions associated with cultivated meat production can help mitigate climate change impacts and promote biodiversity conservation. In summary, Dr. Sandeep Sharma's lecture highlighted that cultivated meat technology not only offers a sustainable alternative to conventional meat but also supports the One Health initiative by promoting healthier ecosystems and food systems.

Chairperson of the plenary session 2 interacting with the speaker, Dr. Jayatri Trivedi

Dr. Sandeep Sharma delivering his invited talk during the session



Prof. Charles Brennan delivering his presentation from Australia in virtual mode

Plenary Session 3: Integration Innovation (Golden Biotechnology)

The second session of the day, themed "Integration Innovation (Golden Biotechnology)," focused on various cutting-edge advancements across multiple subthemes, including Medical Devices and Wearable Technology Innovations, Medical Imaging and Diagnostics, Biomarker Discovery and Disease Prediction, Bioinformatics and Data Analysis, Synthetic Biology and Bioengineering, Biomaterials and Nanotechnology, Sustainable and Eco-friendly Textiles & Dyeing, Robotics and Automation, Additive Manufacturing (3D Printing), and Biomechanics.

The session commenced in Hall 1 of the central auditorium, chaired by **Dr. Imran Siddiqui, Chief Scientist at CSIR-CDRI**, Lucknow. He was joined by **Co-Chairperson Dr. Shishir Kumar Gupta** from the **Department of Bioinformatics at Biozentrum, Universität Würzburg, Germany, and Assistant Professor at CBMR, Lucknow**. The Rapporteur of the session was **Prof. Snober S. Mir, Head of the Department of Biosciences, Integral University, Lucknow.** The whole session was coordinated by **Dr. Imran Hussain, Assistant Professor in the Department of Bioengineering at Integral University**. The discussions highlighted interdisciplinary collaborations and the role of innovation in shaping the future of biotechnology.

The first speaker of the session was **Prof. Shozeb Haider** from Computational Biophysics, University College, London and the topic for his talk was "**ML-Driven Molecular Simulations: Predicting Beta-Lactamase Function and Inhibitor Interactions"**. Specifically, the discussion revolved around predicting beta-lactamase function and inhibitor interactions using advanced computational techniques. He introduced Beta-lactamases as enzymes that are responsible for hydrolyzing beta-lactam antibiotics, conferring resistance to various drugs such as ceftazidime-avibactam. Furthermore he apprised the audience about the role of substrate-assisted catalysis in beta-lactamase activity, particularly in the presence of zinc ions that influence catalytic efficiency. He told about various ML techniques, including autoencoders and variational autoencoders for identifying molecular conformations, convolutional autoencoders for dimensionality reduction and feature extraction, and loss function optimization to enhance prediction accuracy in molecular dynamics simulations.

He highlighted the significance of symmetry in enzymatic catalysis, particularly regarding zinc ion coordination and its impact on conformational stability. He used simulations including metadynamics, to study beta-lactamase activity, with a focus on one dihedral angle movement in mutants affecting substrate interactions. He also told about his studies on the specific mutations, such as D179N and D179Y, for their role in conferring resistance to ceftazidime-avibactam, revealing structural modifications that alter enzyme activity and substrate binding. Prof. Haider's session provided valuable insights into how ML-driven molecular simulations can enhance our understanding of beta-lactamase function and inhibitor interactions, with promising implications for predicting drug resistance mechanisms and designing effective inhibitors. Future research will focus on refining ML models for molecular dynamics simulations to improve predictive accuracy, expanding datasets with experimental validation to enhance computational reliability, and integrating quantum mechanics with ML approaches to gain deeper insights into enzymatic functions and inhibitor binding dynamics, potentially leading to novel antimicrobial strategies.

The second lecture of the session was delivered by **Dr. G. P. S. Raghava**, Head & Professor, Department of Computational Biology, Indraprastha Institute of Information Technology (IIIT-Delhi), India, who joined online to present his work on **"Bioinformatics Resources for Genetically Modified Crops"**. Dr. Raghava began with a comprehensive overview of the history of genetic engineering and India's status in this field. He elaborated that various techniques are used in time immemorial for creating genetic variations in plants like traditional

breeding techniques, RNA interference, mutagenesis, and the revolutionary CRISPR-Cas system. His talk emphasized the role of therapeutic proteins as drugs and classifying them into four groups: Group 1, which targets original defective proteins, and Group 2, which has special targeting activity, Group 3 are vaccines and Group 4 are diagnostic agents. He highlighted available prediction methods for risk assessment, addressing toxicity, allergenicity, biotic stress, and abiotic stress through various bioinformatics software tools. He introduced the audience to various software tools for toxicity assessment, such as ToxDL, ToxGIN, and ToxIBTL; for allergenicity prediction, including AlgPred 2.0 and PreAlgPro; for biotic stress analysis, like NBSpred and Plant DRPpred; and for abiotic stress evaluation, such as ASRpro and DeepAprot. Dr. Raghava emphasized that genetically modified (GM) crops have demonstrated greater success than regular crops, particularly in enhancing agricultural productivity and sustainability. He also introduced molecular farming as a promising approach for producing edible vaccines, citing the example of a potential coronavirus vaccine in banana plants. Additionally, he discussed how Indian researchers are utilizing free software tools to advance GM crop research and presented CoReGMC, a comprehensive repository containing all resources related to genetically modified crops. His insights underscored the significance of bioinformatics in assessing and improving GM crops, ultimately contributing to global food security and healthcare advancements.

The third lecture of the session was delivered by Prof. Naidu Subbarao, a distinguished researcher in computational drug design and bioinformatics, recently delivered an insightful talk on the tools and methodologies essential for drug discovery, with a special focus on malaria drug development. He emphasized the significance of computational and biochemical tools in identifying potential drug candidates, highlighting resources such as PubChem Bioassay, ChemEMBL Bioassay, ZincDB, and PubChemDB, which provide extensive bioactivity and chemical molecule data. A major portion of his presentation was dedicated to the integration of computational techniques in malaria drug discovery, demonstrating how database-driven research can expedite the identification of novel antimalarial compounds. He further elaborated on modern drug design approaches, including Target-Driven Drug Repurposing (TDR), which explores new therapeutic applications for existing drugs, Structure-Based Drug Design (SBDD), which utilizes the three-dimensional structure of biological targets for identifying active compounds, and Pharmacophore-Based Drug Design (PDTD), which focuses on the essential

chemical features necessary for drug-target interactions. Additionally, Prof. Subba Rao discussed the role of artificial intelligence and machine learning in revolutionizing drug discovery, particularly through AI-driven protein structure predictions such as AlphaFold, and databases like PSDB for protein structure analysis, MMV for malaria drug research, and PfalDB, a specialized repository for Plasmodium *falciparum*, the parasite responsible for malaria. His talk underscored how the integration of computational tools, AI-driven modeling, and structure-based approaches significantly enhances the efficiency of drug discovery. Prof. Subba Rao's contributions continue to shape computational drug research, driving innovations that are crucial in the fight against malaria and other infectious diseases.

The fourth lecture was delivered by Prof. Amir Ahmad, Senior Scientist at the Translational Research Lab, Hamad Medical Corporation, Doha, Qatar. He presented his research on "**Epigenetic Signature for Stratification of Responders to Immunotherapy in Non-Small Cell Lung Cancer (NSCLC)**". He began by highlighting the prevalence of NSCLC, which constitutes approximately 11% of male and 12% of female cancer cases, and remains the leading cause of cancer-related mortality. Dr. Ahmad emphasized the importance of precision medicine in addressing the challenges posed by the genetic heterogeneity and drug resistance in NSCLC. He noted that while the FDA has approved various drugs for NSCLC, many are non-targeted, underscoring the need for identifying specific genetic markers such as NTRK, RET, HER, MET, and ALK, which are common mutations globally. Interestingly, EGFR mutations, though prevalent in certain populations, are less common in Indian and Western cohorts. The drug Gefitinib, targeting EGFR, demonstrated higher efficacy in Japanese patients due to a higher mutation rate, whereas only 10-15% of patients in the US and Europe exhibited these mutations. Dr. Ahmad discussed the evolution of EGFR tyrosine kinase inhibitors (TKIs) across four generations, with Osimertinib being a notable third-generation TKI. He highlighted the role of microRNAs (miRNAs) in modulating protein expression, noting that over 8,000 miRNAs have been identified to date. Dr. Ahmad's research demonstrated that specific miRNA signatures could stratify patients, leading to a significant increase in progression-free survival when treated with Osimertinib. He also mentioned the potential of combining miRNA analysis with long non-coding RNAs (lncRNAs) to enhance predictive accuracy. Dr. Ahmad's conclude his talk by discussing the challenges in the field which include an incomplete understanding of the

mutational landscape, high costs, and the need for miRNA evaluation in diagnostic laboratories. The event concluded with felicitation of the speakers, chairperson and co-chair with mementoes.

Prof. Shozeb Haider from UCL London delivering his invited talk on “ML-driven molecular simulations: predicting β-lactamase function and inhibitor interactions”

Prof. Naidu Subbarao during his talk on “structure based drug designing of antimalarial, antituberculosis and anticancer agents”

Prof. Amir Ahmad from Hamad Medical Corporation in Qatar delivering his insightful lecture during the conference

Plenary Session 4: Food science, engineering and technology (Yellow Biotechnology)

The session covered several key themes in food science and technology, including **Food Quality and Safety Engineering, Innovations in Food Preservation, Food Biotechnology, AI in Food Engineering, Circular Economy, Smart Packaging, and Nutritional Engineering**. The **session on "Food Science, Engineering, and Technology (Yellow Biotechnology)"** was chaired by **Dr. P.P. Gothwal**, Director of **CFTRI, Lucknow**, and co-chaired by **Dr. Suaib Luqman**, Senior Principal Scientist at **CSIR-CIMAP, Lucknow**, with **Ms. Gazia Nasir** serving as both coordinator and rapporteur.

The first lecture was delivered by Prof. R. Mahendran, Head of the Department of Food Processing and Technology at NIFTEM, Thanjavur, on **"Cold Plasma Applications in Agri-Food Processing"**. He provided insights into non-thermal processing technologies, including ultrasound processing, pulsed electric fields, high-pressure processing, and cold plasma technology. He highlighted the role of cold plasma in microbial reduction, insecticide applications, 4D food formation, egg shell calcium fortification in black coffee, and shrimp preservation.

Following this, Mr. Nilesh Lele, President of the Chamber for Advancement of Small and Medium Businesses, Mumbai, spoke on **"How to Make Your Food & Biotech Startup Fundable and Funding Ready"**. He emphasized self-funding before seeking investors, leveraging family as the first round of investment, and identifying market needs before launching a business to attract investors effectively.

The third lecture, delivered online by Dr. D. D. Wadikar, Scientist at DRDO, Mumbai, focused on **"Novel Nutrients and Smart Proteins for Alleviating Nutritional and Physiological Challenges in Extreme Environments".** He discussed adaptogens for stress resilience, antioxidants for oxidative stress, plant-based smart proteins, microbial fermentation, and bioengineered meat analogs. He also explored nutritional interventions for extreme physiological stress, heat stress proteins, and the future role of nutrient printers and bioengineered probiotics.

The final lecture was delivered by Dr. Tariq Ahmad Ganaie, Head of the Department of Food Technology at the Islamic University of Science and Technology, Awantipora, India, on **"Artificial Intelligence in the Food Industry"**. He outlined AI applications in food sectors, including X-ray, NIR spectroscopy, lasers, cameras, and machine learning algorithms. He also discussed AI-driven sorting, electronic tongues and noses, and defect detection in ingredients, along with its benefits, drawbacks, and ethical considerations in food processing. The session was highly engaging, with students actively participating in discussions with the experts.

Chairman, co-chairman and faculty coordinators of yellow biotechnology plenary session on the dias

Dr. Nilesh Lele, President, Chamber for Advancement of Small and Medium Businesses, delivering his lecture during the event in the Hall 2 of central auditorium

Dr. Tariq Ahmad Ganaie delivering his invited lecture on “Artificial Intelligence in Food Technology”

Keynote Session 4:

The third day of International Conference on "Trends and Innovations in Science and Engineering: Bridging the Industry-Academia Interface" started with the keynote address by **Mr. Christoph Sprung HTW Berlin, Germany** who delivered a talk on topic **"*Guiding Energy-Supporting Great Minds to Flourish".*** He emphasized the crucial role of guiding energy in fostering the growth and success of great minds in a world filled with lots of challenges and opportunities. It not only helps in the development of great minds but also provides the right support system and environment enabling individuals to unlock their full potential in any sphere of life whether in education, leadership, or personal development. He discussed the various factors responsible for bringing out the best in students which includes providing them right direction or pathway, proper supervision and guidance to achieve their goals. Mr. Christoph also recommended the incorporation of good mentorship, emotional support, faith, intellectual stimulation, and access to opportunities. Moreover, he also focussed on encouraging curiosity, empathy, resilience, discipline in an individual for creating a mindset that will help in reforming and shaping a brighter future for the students. His talk also emphasized on making meaningful contributions to society which can be achieved with the combination of right support and great minds to progress in various fields. His inspirational talk gave insight on having a right vision, clarity, courage and strong in making decisions to become a beacon of light.

Mr. Christoph Sprung from Germany delivering his keynote address on “Guiding Energy-Supporting Great Minds to Flourish”

Pro-Chancellor Dr. Syed Nadeem Akhtar and Chief Advisor Prof. Furqan Qamar felicitating Mr. Christoph Sprung

Plenary Session: 5

Unlocking Opportunities: Fellowships for the Next Generation of Researchers

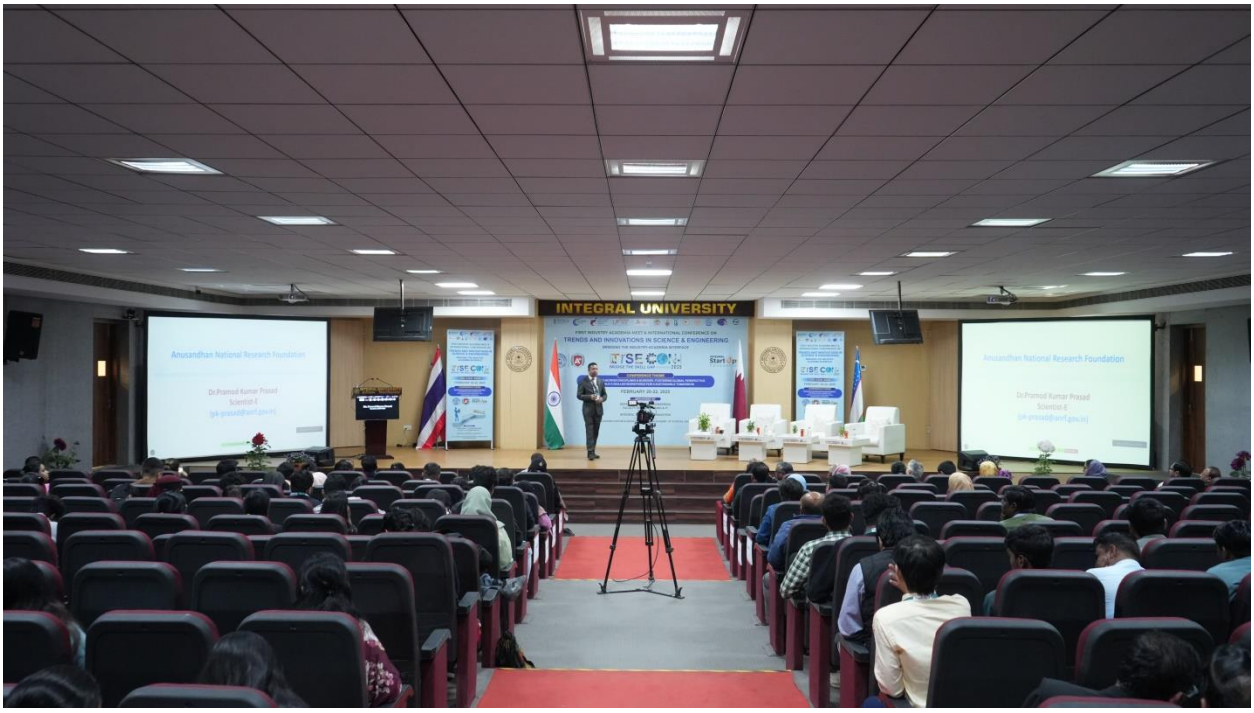
After the keynote address, plenary session 5 of the conference was organized. **Dr. Sudarsan Dash** Full Bright Senior Program Officer, delivered an informative talk on ***Fulbright Fellowship Opportunities for Study, Research, Teaching, and Professional Development in the U.S.*** giving a comprehensive overview of Fullbright Fellowship programs available for budding researchers, students and faculty members. He enlightened the audience about USIEF's activities which is a bi-national organization established on February 2, 1950. He laid emphasis on the objective of the Full bright program which aims to increase mutual understanding between people of the United States and other countries. He discussed about the grant offerings such as F-N Master's Fellowships, Doctoral Research Fellowships, Postdoctoral Fellowships which are designed for highly motivated individuals having leadership qualities. The fellowships cater to the individuals belonging to different fields such as Economics, Environmental Science, International Legal Studies, Public Health, Sustainable development etc. He captivated the audience and created awareness among the audience specially faculties, researchers and professionals by briefly describing the Fullbright-Nehru Academic and Professional Excellence Fellowships for teaching, research or a combination of both. Moreover, he also discussed about Humphrey Fellowship Program which aims to bring together young and mid-career professionals from developing countries to the United States. Dr. Sudarshan gave a stepwise overview of the resources to prepare the applications, effective research proposals, and reference reports, and effective lecturing proposals.

The next session was taken over by **Mr. Pramod Kumar Prasad**, Scientist E, DST-ANRF who briefed the audience on topic entitled ***"Anusandhan National Research Foundation- Transforming India's Research Landscape.*** Mr. Prasad provided an overview of the National Research Foundation (NRF), which plays a pivotal role in providing strategic direction for research, innovation, and entrepreneurship in India. He elaborated on how NRF focuses on multiple disciplines, including natural sciences, engineering, technology, environmental and earth sciences, health, agriculture, as well as the scientific and technological interfaces of humanities and social sciences. The foundation aims to promote and monitor research activities while fostering a robust research ecosystem aligned with the National Education Policy guidelines. During his lecture, Mr. Prasad discussed the genesis and objectives of the

Anusandhan National Research Foundation (ANRF). He emphasized that ANRF is designed to unlock the latent potential of universities and colleges, facilitate research at academic institutions, and assist in establishing research infrastructure and capacity building. These efforts are aimed at propelling India towards global leadership in science and technology. He also detailed the financial aspects of ANRF, explaining various funding sources such as Innovation Funds, Science and Engineering Research Funds, and Special Purpose Funds. In addition, he introduced the ANRF Translational Research and Innovation Initiatives, which focus on converting research into practical applications. A significant portion of his lecture was dedicated to capacity building and global collaboration. He highlighted the importance of postdoctoral fellowships and the need to support early-career researchers in pursuing innovative research in frontier areas. Mr. Prasad urged participants to explore interdisciplinary fields, including social sciences and humanities, for project funding opportunities. Furthermore, he presented statistical projections, stating that the percentage of GDP allocated to Research and Development (R&D) will increase to 3.5% by 2047. Additionally, he projected that the number of researchers in India will rise to 2500, ensuring substantial growth in scientific inquiry and technological advancements. He also stressed the importance of maintaining high levels of transparency, upholding the highest standards of scientific integrity and ethical conduct, and ensuring an efficient and simplified procurement process. The session was highly informative, providing valuable insights into ANRF's strategic vision and future goals. Mr. Prasad's emphasis on innovation, interdisciplinary collaboration, and global outreach reinforced the significance of ANRF in shaping India's research and development landscape.

Dr. Sudarsan Dash, Full Bright Senior Program Officer, delivering his talk


Dr. Syed Nadeem Akhtar interacting with Dr. Sudarsan Dash after his lecture



Mr. Pramod Kumar Prasad, Scientist-E at DST-ANRF, delivering his invited talk

Mr. Pramod Kumar Prasad receiving the honor after his talk

Plenary Session: 6

Health care, diagnostics and drug discovery (Red Biotechnology)

The sixth plenary session of the conference was focused on various cutting-edge advancements across multiple subthemes, including Advances in Gene Therapy and Editing Techniques, Stem Cell Applications in Regenerative Medicine, Precision Medicine and Pharmacogenomics, Cancer Biology, Cancer Immunotherapy and Targeted Therapies and Tissue Engineering and Organ-on-a-Chip Technologies. This session provided valuable insights into the latest advancements, challenges, and opportunities in the field of biomedical research and innovation. Experts from various domains, including healthcare, pharmaceuticals, and biotechnology, gathered to discuss emerging trends and transformative technologies in disease diagnosis and treatment.

The session commenced in the central auditorium, chaired by **Dr. Ashok K. Datusalia** from **National Institute of Pharmaceutical Education and Research, Raebareli.** He was joined by Co-Chairperson **Dr. Kausar Mahmood Ansari, Principal Scientist, CSIR-IITR, Lucknow**. The Rapporteur of the session was **Dr. Tarique Mahmood, Professor, Faculty of Pharmacy, Integral University**, **Lucknow.** The whole session was coordinated by **Dr. Andleeb Khan, Associate Professor, Dept. of Biosciences, Integral University, Lucknow.**

The first speaker of the session was **Dr. Shamim Ahmad, Director and Head of IP & Legal Aurigene Oncology (a subsidiary of Dr. Reddy's Laboratories)** and the topic of his talk was **"Research to Revenue: Leveraging IPR to drive growth".** This was a wonderful talk focused on the critical role of Intellectual Property Rights (IPR) in translating research innovations into commercially viable products. He discussed about pros and cons of Monopoly right. He discussed about types of patents and detailed processing. Experts shared insights on effective patent strategies, technology transfer, and licensing models that enable researchers and startups to maximize the commercial potential of their discoveries. Additionally, the talk addressed challenges such as navigating complex IP laws, mitigating infringement risks, and leveraging global IPR frameworks for market expansion. The session underscored the importance of strategic IPR management in fostering innovation, industry-academia collaboration, and economic growth through research commercialization.

The second lecture of the session was delivered by **Dr. Vivek Kumar Gaur from Amity Institute of Biotechnology, Amity University Uttar Pradesh Campus Noida**. He discussed on the theme of **"Metabolic engineering of E. coli for production of biochemicals**". He started with the microplastics and their harmful effects. The talk focused on the genetic modifications and optimization strategies used to develop the bioplastics. He explained the development of polymers and homopolymers from *E. coli.* The discussion highlighted advancements in synthetic biology, metabolic pathway engineering, and fermentation technology to improve yield, efficiency, and sustainability The talk also explored industrial applications such as the production of biofuels, pharmaceuticals, and biodegradable plastics, demonstrating E. coli's versatility as a biotechnological tool. Challenges such as overcoming metabolic bottlenecks, improving scalability, and ensuring environmental sustainability were also addressed. His lecture emphasized the growing role of metabolic engineering and synthetic biology in driving cost-effective and sustainable biochemical production, offering promising solutions for industries focused on renewable and bio-based alternatives.

The third lecture of the session was delivered by **Dr. Mohammad Hassan Baig, CTO, BNJ BIOPHARMA, South Korea** who joined online to deliver his talk on the topic **"Redefining Drug Discovery through Targeted Protein degradation"**. The talk of Dr Baig explored the innovative approach of selectively degrading disease-causing proteins as a therapeutic strategy. Unlike traditional small-molecule inhibitors, targeted protein degradation (TPD) harnesses cellular degradation pathways, such as the ubiquitin-proteasome system, to eliminate specific proteins implicated in diseases like cancer and neurodegenerative disorders. The discussion highlighted advancements in proteolysis-targeting chimeras (PROTACs) and molecular glue degraders, which offer enhanced specificity and efficacy compared to conventional drug discovery methods. Experts also addressed challenges in optimizing degrader design, improving drug delivery, and overcoming resistance mechanisms. The session underscored the potential of TPD to revolutionize precision medicine by offering new treatment options for previously "undruggable" targets, paving the way for more effective and personalized therapeutics.He concluded the talk by elaborating the work going in BNJ BioPharma and future directions

The fourth lecture of the session was delivered by **Dr. Jayaram from Computational biology, IIT Delhi** who also joined online to deliver his talk on the **topic "Genome to Drug in silico: A**

country path today; A highway tomorrow”. This lecture explored the evolving role of computational approaches in drug discovery, emphasizing how in silico methods are transforming the journey from genomic insights to effective therapeutics. Traditionally, drug development has been a time-consuming and costly process, but advancements in artificial intelligence (AI), machine learning (ML), and bioinformatics are significantly accelerating this pathway. Experts discussed how genome sequencing, molecular modeling, and virtual screening techniques are being integrated to identify potential drug targets more efficiently. The lecture highlighted the unique tools like “ Dhanvantari”, “Sanjeevni” and Bhageerath” Speakers emphasized the potential of in silico tools to not only identify novel drug candidates but also predict drug interactions, optimize lead compounds, and reduce dependency on traditional trial-and-error experimentation. Furthermore, the discussion underscored how personalized medicine can benefit from these advancements, as in silico models enable the design of tailored therapies based on individual genomic data. He concluded with the proposal to create a Computational Protein data bank.

The session on "Health Care, Diagnostics, and Drug Discovery (Red Biotechnology)" provided valuable insights into recent advancements and emerging trends in the field. Experts from academia, industry, and research institutions shared their perspectives on the role of biotechnology in revolutionizing healthcare focused on cutting-edge diagnostic techniques, including AI-driven medical imaging, personalized medicine, and rapid disease detection methods. Innovations in drug discovery were highlighted, with an emphasis on computational drug design, biomarker-based therapies, and gene editing technologies like CRISPR. The session also explored the impact of biotechnology on combating infectious diseases, cancer treatment, and regenerative medicine. Ethical considerations and regulatory challenges were addressed, underscoring the need for balanced policies to ensure safety and accessibility. Overall, the session reinforced the transformative potential of red biotechnology in improving global healthcare outcomes and fostering interdisciplinary collaborations for future advancements.

Key discussions of the session comprised on advancements in stratified medicine, leveraging genetic and molecular diagnostics for early disease detection and targeted therapies. The role of AI and big data in accelerating drug discovery was emphasized, showcasing how computational models and machine learning are revolutionizing pharmaceutical research. Speakers underscored

the importance of biomarkers, next-generation sequencing, and CRISPR-based gene editing in diagnosing and treating genetic disorders. The session also addressed challenges such as regulatory hurdles, ethical considerations, and the high costs of drug development. Additionally, the integration of biopharmaceuticals, monoclonal antibodies, and cell and gene therapies was explored as promising approaches to treat chronic and rare diseases. The discussion reinforced the need for interdisciplinary collaboration between scientists, clinicians, and regulatory bodies to enhance healthcare outcomes through cutting-edge biotechnological innovations.

Dr. Shamim Ahmad, Director and Head of IP & Legal Aurigene Pvt. Ltd., delivering his talk

Dr. Vivek Kumar Gaur during his presentation in the central auditorium

Dr. Mohammad Hassan Baig delivering his talk from South Korea in virtual mode

Session incharges on the dias during Dr. Jayaram presentation

Session on Industry Experts:

The session on “Industry Experts” was chaired by Dr. Saba Siddiqui, Head, IIAST, Integral University, Lucknow and co-chaired by Prof. Iffat Zareen Ahmad, Dept. of Bioengineering, IU Lucknow, with Dr. Swati Sharma Dept. of Biosciences, IU, serving as rapporteur. The session was very well coordinated by Dr. Poonam Sharma, Dept. of Bioengineering, IU.

The first lecture was delivered online by Dr. Mohammad Khurshed Alam Khan, Divisional Manager and Head of Research & Development, ITC Hotels, Greater Delhi Area. His talk, "Managing Food Safety Risks in Business Operations," was informative and thought-provoking. He provided valuable insights into the risks faced by the hospitality industry, including foodborne diseases, food poisoning, and the associated financial losses. Dr. Khan discussed various risk assessment and quality control measures, as well as food safety regulatory systems in different countries. He emphasized that food safety and quality control are key to long-term business success.

Following Dr. Khan's presentation, the session continued with a lecture by Dr. Richa Saxena, founder of KOSH-Treasure of Khadi. Dr. Saxena explained that KOSH is a sustainable textile company producing organic cotton khadi fabric. Its mission is to pioneer the textile industry by blending handcraft, sustainability, and the economic progress of artisans. Her talk, "Textile Innovation in Hands Walk with Biotechnology," highlighted the current problems of water and environmental pollution in the textile industry. She added that these problems can be solved by using natural or bio fabrics, such as spider silk and natural dyes. She also advocated for the use of organic and genetically modified crops and animals for sustainable fibre procurement.

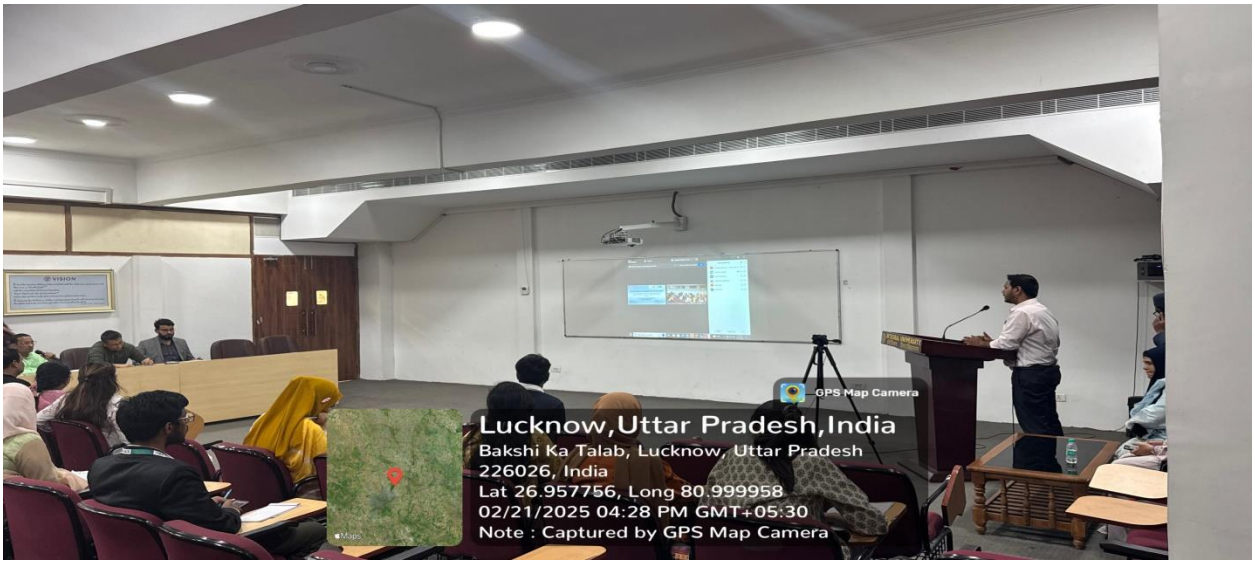
The session concluded on note by session chair that sustainability nowadays is mandatory and not a choice and we have to adopt to conscious living for a better tomorrow. This was followed with a lively and engaging exchange between the audience and the expert, demonstrating the profound insights shared and the intellectual curiosity sparked by the lectures.

Prof. Wahajul Haq felicitating Dr. Mohammad Khurshed Alam Khan, Divisional Manager and Head of Research & Development, ITC Hotels

Oral Presentations

The second day witnessed several events and competitions for boosting students knowledge, enthusiasm and judging their intellectuals such as oral sessions with theme **Research Innovations & Research Meet** which was categorized into **Blue/Green Biotechnology**- Sustainability and Green Technologies (T1), **Golden Biotechnology**- Integration Innovation (T2), **Yellow Biotechnology**- Food science, engineering and Technology (T3), **Red Biotechnology-** Healthcare, Diagnostics and Drug discovery (T4). The faculty members and research scholars presented their cutting-edge research from the Integral University labs enthusiastically and captivate the judges and audience alike with their research showcase.

The **oral presentation competition** during the conference provided an engaging platform for scholars and students to showcase their cutting-edge research across various disciplines. Participants delivered insightful presentations on their studies, highlighting key findings, methodologies, and real-world implications. The competition fostered an environment of academic excellence, encouraging critical discussions and knowledge exchange among researchers, industry professionals, and faculty members. Judges evaluated presentations based on clarity, originality, scientific rigor, and presentation skills, ensuring a high standard of academic discourse.



Dr. Gyanendra Tripathi from Bioengineering Department of Integral University presenting his research

The winners of different themes of the oral presentations along with the faculty coordinators and delegates

Poster Sessions

The poster sessions in the TISE CON 2025 on Trends and Innovations in Science and Engineering: Bridging the Industry-Academia Interface was successfully conducted on all four themes of Biotechnology on the second day.

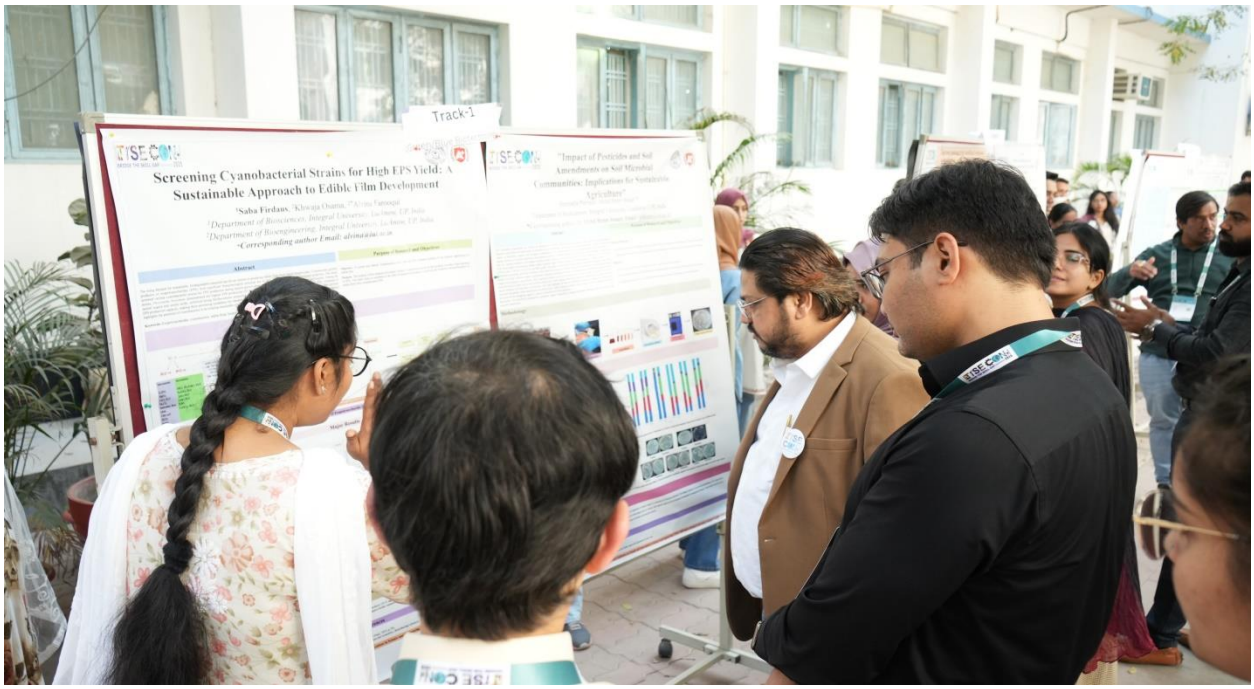
Poster session evaluators were as follows**:**

- Prof. Mohammad Jawaid, Professor, Chemical & Petroleum Engineering (COE), United Arab Emirates University, UAE
- Prof. MA Khalid, Dean Students Welfare, Integral University, Lucknow
- Prof. Snober S. Mir, Professor and Head Biosciences, Integral University, Lucknow
- Dr. Vivek Kumar Gaur, Assistant Professor, Amity University, Noida
- Dr. Irfan Ahmad Ansari, Associate Professor, Integral University, Lucknow

The judges were very enthusiastic and motivated the students with their experience and knowledge. Participants presented the posters very well on different aspects of biotechnology. In each theme, two awards (Rank 1st & 2nd) were awarded. The evaluation was conducted on the

basis of research quality, knowledge of subject and on presentation skill of the participants. The session was ended by presenting the memento as a token of gratitude to judges.

Prof. MA Khalid, Dean Students Welfare, evaluating the poster



Dr. Vivek Kumar Gaur from Amity University in Noida evaluating the poster

Research scholars presenting the poster

Prof. Snober S. Mir of Integral University evaluating the poster

Student Competition on Eco Influence:

The student competition held during the International Conference on Eco Influence showcased remarkable talent and commitment to environmental advocacy. With the themes *Green Voices* and *Eco Advocate*, the competition encouraged students to present innovative ideas, research, and solutions addressing pressing ecological challenges. Participants from various academic institutions passionately voiced their perspectives on sustainability, climate change, and conservation strategies. Through speeches and debates, students highlighted the importance of collective action in fostering a greener future. The competition served as a platform to amplify young voices, fostering dialogue on real-world environmental concerns and meaningful action.

The *Eco Advocate* segment focused on policy-driven and solution-oriented approaches, where students proposed sustainable practices, eco-friendly business models, and community-driven initiatives. Meanwhile, *Green Voices* provided an avenue for creative expression, featuring storytelling, and visual arts that conveyed powerful environmental messages. Judges assessed the entries based on innovation and impact. By engaging students in thought-provoking discussions, the competition reinforced the significance of youth leadership in shaping a sustainable future.

Miss Mariyam Rafi during the presentation on solution to food crisis or ecological disaster

A student delivering his talk

A student delivering her presentation on eco-friendly navigation shoes with build in energy harvesting

Mr Jasim Rana, Student of BTech Biotech Program, during his talk

TISE CON EXPO-2025

An expo was organised as the part of the conference which was inaugurated after the inaugural function of the conference by Padma Shri Prof. GD Yadav in the presence of dignitaries. A total of 18 stalls from various government and private organisations showcased their products and technology. The students of Food Technology course displayed various products which were developed by them in the departmental labs. The products developed were based on the various themes such as new product development, food waste valorisations and new innovation in food processing. These products were the eye catchers of the event. Various organisations like Dark Elafi Industries Pvt. Ltd., ITM Pvt. Ltd., Kosh, Blinkfind, NW Studio, Nutty Village and Affiliatekaro showcased their products. This Expo was open to the students and the general public for all the three days of the conference.

Padma Shri Prof. GD Yadav inaugurating TISE CON EXPO-2025


Prof. Alvina Farooqui and delegates interacting with the participants at the stalls

Prof. SW Akhtar, Chancellor, Integral University visiting and interacting with the participants

Valedictory Function:

The three day international conference TISE CON 2025 concluded with a valedictory program which was anchored by **Dr. Durdana Yasin**, Assistant Professor, Department of Biosciences with the brief report of activities. She welcomed and thanked the invited guests gracing the program and concluded by wishing the participants good luck for their future endeavors. The session was a momentous conclusion to the conference, reflecting upon its achievements and paving the way forward for future endeavors. It began with a warm welcome address by **Prof. Mohd Haris Siddiqui**, Registrar, Integral University, and Co-Patron of TISE CON 2025, who extended his gratitude to all participants, speakers, and organizing members. **Prof. Salman Akhtar**, Convener of TISE CON 2025, then presented the Conference Report, highlighting key takeaways and valuable contributions made by researchers. **Prof. Abdul Azeez**, Dean Engineering, Integral University, and Co-Patron TISE CON 2025 gave his valuable insights about the conference. **Prof. Wahajul Haq**, Dean R&D, Integral University, shared insights on the conference's impact on research and development, emphasizing interdisciplinary collaboration. The session was graced by **Prof. Mohammad Jawaid**, a Distinguished Guest from UAE, who shared perspectives on emerging trends in science and engineering. A special segment, *Echoes of Success*, featured alumni reflections on their experiences and contributions. **Dr. Nida Fatima**, Executive Director of Integral Startups Foundation, commended the

organizing team and acknowledged the knowledge exchange facilitated by the event. **Prof. Furqan Qamar**, Advisor to the Hon'ble Chancellor, emphasized fostering innovation and research. **Dr. Syed Nadeem Akhtar**, Hon'ble Pro-Chancellor and Chief Patron, delivered an inspiring address on bridging academia and industry. The session continued with the **Prize Distribution Ceremony**, honoring outstanding performance in various competitions followed by **Memento Presentation** to distinguished guests.

The third day also witnessed several events and competitions for boosting students knowledge, enthusiasm and judging their intellectuals such as Oral Session with theme **Research Innovations & Research Meet** which was categorized into **Blue/Green Biotechnology**- Sustainability and Green Technologies (T1), **Golden Biotechnology**- Integration Innovation (T2), **Yellow Biotechnology**- Food science, engineering and Technology (T3), **Red Biotechnology-** Healthcare, Diagnostics and Drug discovery (T4), the Planet Protectors Oratory Competition, Green Voices, and Eco Advocate. The winners of the competitions were announced and felicitated with certificates, mementos, and shauls. The winners of T1, T2, T3, and T4 were Dr. Gyanendra Tripathi, Dr. Anam Kamal, Ms. Hina Siddiqui, and Mr. Suhail Ahmad respectively. Ms. Manavi Sharan and Ms. Afsha gain first prize for the Planet Protectors Oratory Competition. The First prizes for Eco-advocate competition and Green voices were bagged by Ms. Mariyam Rafi and Mr. Mohd. Jasim Rana respectively. The novel food product development competition was won by Mr. Mohd Amaan.

Lastly**, Prof. Alvina Farooqui**, Head of Bioengineering and Organizing Chair, delivered the **Vote of Thanks**, expressing gratitude to all dignitaries, esteemed guests, faculty members, and participants involved relentlessly in making the event successful. She mentioned that TISE CON-2025 is more than just a gathering for scientific discussions—it is a testament to an unwavering passion for advancing a grand vision. This vision belongs to our esteemed Chancellor and Founder, Prof. Syed Wasim Akhtar, the visionary architect of this prestigious institution. His dedication and sacrifices in his youth were driven by a relentless pursuit to spread awareness about technical education, nurturing and skilling students from school to graduation. This event is a sincere effort to fulfill the aspirations of our esteemed Pro-Chancellor, Dr. Syed Nadeem Akhtar, whose unwavering support, encouragement, and appreciation continue to inspire us. His words, *"Sky is the limit,"* echo in our hearts and minds, motivating us to strive for

excellence. His legendary leadership, like a rare and precious gem, rekindles our spirit, empowering us to overcome challenges and break barriers on the path to progress.

The session concluded with the **National Anthem**, marking the official closure of TISE CON 2025 with a legacy of insightful discussions and promising research prospects.

Prof. Salman Akhtar giving the summary of the three days of conference

Prof. Alvina Farooqui on the dias proposing the Vote of Thanks

Online audience speaking highly of this mega event and organizer

Aluminus of Integral University from USA in virtual mode talking about his alma mater and this conference

Award winners in different categories

Group photograph after the valedictory function