

## प्रौद्योगिक महाविद्यालय

### जी-20 समीक्षा

प्रौद्योगिक महाविद्यालय में दिनांक 25.09.2023 से 09.10.2023 तक जी-20 कार्यक्रम आयोजित किया गया, जिसमें विभिन्न कार्यक्रमों में यथा C20, U20, S20, Y20, W20, U20, S20, में Expert/Resource Persons द्वारा Expert Talk दी गई।

स्टार्टप एवं बिजनेस श्रेणी के अन्तर्गत डा० ए०के० स्वामी एवं डा० डी०एस० मूर्ति द्वारा आयोजित किया गया।

### **Report on Activities conducted Under G20 (B20 & S20)**

Following expert lectures were conducted under “Celebrating India’s G20 Presidency – Engaging Young Minds” on September 28, 2023:

- **Expert Talk on “Mantras for Developing Bankable Project Proposals” under the Business 20 subgroup delivered by Dr Deep Chandra, Former Vice President, Nainital Bank.**

The presentation highlighted the key issues while preparing project proposals for obtaining funds from banks. Specific inputs were provided to prepare bankable project proposals.

- **Expert Talk on “Learning From Our Start Up Journey” under the Startup 20 subgroup delivered by Mr Ritesh Joshi & Mr Chetan Bisht, Co-Founders, Beazy Tech Private Limited, Haldwani (Alumni of the college).**

In this enlightening talk they shared the secrets to turning dreams into tangible achievements. Discussed real-life examples that prove dreams are attainable. They emphasised on Exploring the importance of skill-building, problem-solving, and network-building.

The programme was attended by faculty members and students of the college in large number and thus was a grand success.



जी-20 के अन्तर्गत यूथ श्रेणी डा0 अजय एवं डा0 अभिषेक तोमर द्वारा आयोजित किया गया। साइंस एवं टेक्नोलॉजी श्रेणी का आयोजन विभागाध्यक्ष कम्प्यूटर इंजी0 एवं इं0 राजेश श्याम सिंह के द्वारा आयोजित किया गया।

1. राष्ट्र द्वारा मनाये जा रहे जी-20 सप्ताह के अन्तर्गत आई0आई0टी0 रूढ़की, यांत्रिकी एण्ड औद्योगिकी अभियंत्रण के प्राध्यापक, डा0 नवनीत अरोरा द्वारा दिनांक: 29.09.2023 को Deaddiction and Enhancement of Human Value विषय पर प्रौद्योगिकी महाविद्यालय के छात्रों से एक विशेषज्ञ वार्ता की गई। इस वार्ता का मुख्य आकर्षण विभिन्न प्रकार के तर्कों एवं साक्ष्यरूपी उदाहरणों के द्वारा छात्रों को किसी भी प्रकार की गलत संगती एवं आदतों को त्यागने के लिए व मानव मूल्यों को जागृत करने के लिए प्रोत्साहित किया गया। वार्ता लगभग 75 मिनट चली। वार्ता में छात्रों द्वारा अपनी जिज्ञासाओं को शान्त करने हेतु प्रश्न भी पूछे गये। इस वार्ता में लगभग 15 संकाय सदस्य एवं 140 छात्र उपस्थित रहे। प्रौद्योगिकी महाविद्यालय के अधिष्ठाता एवं समस्त विभागाध्यक्ष भी वार्ता के सुभारम्भ में उपस्थित थे।
2. महाविद्यालय द्वारा एक रक्तदान शिविर का आयोजन दिनांक 18.10.2023 को शहीद ऊधमसिंह मेमोरियल ब्लड सेंटर एवं प्रौद्योगिकी महाविद्यालय के एनएसएस यूनिट के संयोजन से किया गया। शिविर का शुभारम्भ अधिष्ठाता, प्रौद्योगिकी महाविद्यालय डा0 अलकनन्दा अशोक ने स्वयं रक्तदान कर किया। जिसमें प्रौद्योगिकी महाविद्यालय व अन्य महाविद्यालयों के छात्रों, छात्राओं, शिक्षकों, कर्मचारियों एवं स्थानीय लोगों के द्वारा कुल 97 लोगों ने रक्तदान किया।
3. आयोजित कार्यक्रमों की कुछ झलकियाँ निम्न छायाचित्रों में दर्शायी जा रही है:



जेंडर एक्विलिटी श्रेणी में डा० सुधा अरोरा, डा० रीता वर्मा, डा० सुनीता जलाल, डा० वनीता देवी, डा० आस्था वर्मा एवं इंजी० शिखा गोस्वामी द्वारा आयोजन कराया गया।

**Introduction:** The G20 Women Equality Program at college of Technology aimed at fostering awareness and promoting dialogue on gender equality. The multifaceted event included followings:

- Poster Competition,
- Poetry Writing,
- Articles Writing and
- Talk and Interactive session by TituRauteli award winner 2020 Ms. Kanchan Bhandari, (founder NGO Vimarsh)

**G20 and Gender Equality:** The G20, as a forum for international economic cooperation, recognizes the critical role that gender equality plays in achieving sustainable and inclusive growth. The G20 Women 20 (W20) engagement group, specifically focused on women's issues, has been instrumental in advocating for policies that address gender disparities worldwide. As the world grapples with evolving challenges, initiatives at the local level, such as the one organized at college of technology, contribute to the broader conversation championed by the G20.

This report provides an overview of the activities, participant involvement, and insights shared by both students and faculty. This report aims to delve deeper into the intricacies of the event, shedding light on the significance of G20's role in promoting gender equality and capturing the diverse perspectives shared during the program

#### **Event Overview:**

**Poster Competition:** The poster competition served as a visual platform for students to express their perspectives on women's equality. The themes ranged from breaking stereotypes to celebrating achievements. The vibrant and creative submissions showcased the diverse viewpoints of the participants, demonstrating their commitment to raising awareness. As the G20 emphasizes the importance of inclusivity in economic development, the posters echoed the call for breaking gender stereotypes and promoting equal opportunities

**Poetry Writing:** The poetry writing segment allowed students to explore the emotional and artistic dimensions of gender equality. Participants expressed their thoughts through poignant verses, delving into the challenges faced by women and celebrating their resilience. This component added a literary and introspective layer to the program. Poetry, as a form of artistic expression, added a nuanced layer to the discourse. Participants explored the emotional aspects of gender equality, aligning with the G20's recognition of the social and cultural dimensions that contribute to the overall empowerment of women

**Articles writing:** The article writing segment encouraged students to delve deeper into the

subject, fostering research and analysis. Participants explored various aspects of women's equality, including societal perceptions, historical milestones, and the role of education. The articles showcased a thoughtful and informed perspective on the issue

The article writing segment delved into the complexities of gender equality, aligning with the G20's commitment to evidence-based policy making. Participants critically examined societal perceptions, historical milestones, and the role of education in fostering an egalitarian society

More than 200 students participated in above mentioned events with zeal and enthusiasm. Prizes and certificates were awarded to students for their participation.

**Talk By Ms. Kanchan Bhandari, founder, Vimarsh, TituRauteli award winner 2020:**. The highlight of the event was a talk delivered by a knowledgeable social worker. The speaker not only shared insights into the global efforts for women's equality but also made students aware about the laws in Indian Constitution which provide protection to them. Also she shared the helpline numbers which can be used by the students in case of emergency. Our engaged students in an interactive session. This provided a valuable opportunity for participants to gain a broader understanding of the challenges and advancements in the field. The talk by the social worker not only resonated with the G20's emphasis on social inclusivity but also provided participants with insights into global efforts for women's equality.

**Student Engagement and Enthusiasm:** The success of the G20 Women Equality Program at college of technology was not only evident in the depth of discussions but also in the enthusiastic participation and engagement of students. Throughout the event, a palpable sense of enjoyment and camaraderie prevailed, creating an atmosphere conducive to open dialogue and learning.

Students enthusiastically embraced the creative challenges presented by the poster competition, demonstrating their artistic prowess while conveying profound messages. The poetry writing segment became a platform for emotional expression, fostering a sense of shared experiences and solidarity among participants. The articles submitted were not mere academic exercises but reflections of the students' genuine passion for understanding and addressing issues related to gender equality.

During the talk by the social worker, students actively participated in the interactive session, posing thoughtful questions that reflected their keen interest in the subject. The Q&A session served as a testament to the engaged and curious minds of the participants, showcasing a collective desire to deepen their understanding of the complexities surrounding gender equality.

The enjoyment and active participation were not confined to specific segments but permeated every aspect of the program. The atmosphere created by the collaboration between students and faculty members contributed to a rich tapestry of insights and ideas.

### **Student Questions and Inquisitiveness:**

The success of the interactive session during the talk by the social worker can be measured by the quality of questions posed by students. These questions ranged from the practical implementation of gender equality policies to the role of grassroots initiatives in creating societal change. Students demonstrated a profound understanding of the complexities involved and showcased their curiosity about the real-world implications of the discussions.

The questions posed by students indicated not only a thirst for knowledge but also a genuine commitment to translating awareness into action. This engagement reflects a positive shift towards a future generation that not only comprehends the importance of gender equality but is actively seeking ways to contribute to the cause.

In conclusion, the lively participation, enjoyment, and inquisitive spirit demonstrated by students throughout the G20 Women Equality Program underscored the success of the initiative. By fostering an environment that encouraged both creative expression and intellectual curiosity, the event not only educated but also empowered students to become advocates for gender equality within the college community and beyond. The positive impact of such programs resonates with the broader goals championed by the G20 in fostering a more equitable and inclusive world

### **Impact on the College Environment:**

The G20 Women Equality Program at college of technology left an indelible mark on the college environment, fostering a positive and transformative atmosphere. The event catalyzed a shift in perspectives, creating a more inclusive and aware community.

**Heightened Awareness:** The multifaceted activities, discussions, and insights shared during the program significantly heightened awareness about gender equality within the college. Students and faculty gained a deeper understanding of the challenges faced by women and the importance of collective efforts to address these issues.

**Cultural Shift:** The creative expressions in the form of posters, poetry, and articles initiated a cultural shift within the college. The visual and literary representations challenged stereotypes, promoting an environment where diversity and equality are celebrated rather than constrained.

**Open Dialogue:** The program encouraged open dialogue among students and faculty, breaking down barriers and fostering a culture of respectful communication. The interactive session during the talk by the social worker provided a platform for addressing questions and concerns, creating an environment where everyone felt heard.

**Empowerment and Inspiration:** The participatory nature of the program empowered students to become advocates for change. The messages conveyed through various activities inspired individuals to take an active role in promoting gender equality, both within the college and in their broader spheres of influence.

Faculty members actively engaging in the discussions reinforced the notion that education

institutions play a vital role in shaping inclusive mindsets. Their insights resonated with the G20's acknowledgment of the role of education in dismantling stereotypes and fostering equality.

**Conclusion:** The G20 Women Equality Program at college of technology not only symbolized a local commitment to gender equality but also seamlessly integrated with the broader global conversation spearheaded by the G20. By aligning local initiatives with international efforts, the event showcased the interconnectedness of the struggle for gender equality, emphasizing the role each individual plays in contributing to a more equitable world. The G20 Women Equality Program proved to be a dynamic and inclusive initiative, providing students and faculty with a platform to express, learn, and engage in meaningful discussions. The varied activities ensured a holistic exploration of gender equality issues, fostering a spirit of collaboration and understanding among the participants. This event not only contributed to raising awareness but also encouraged a commitment to furthering the cause of women's equality within the college community.

### Some Glimpses





सिविल, अर्बन एवं पर्यावरण, स्वास्थ्य, Disaster Management and Food Safety & Security श्रेणी का आयोजन डा० पी०एस० मेहर, डा० लोकेश वार्ष्णेय एवं कृषि अभियंत्रण विभाग के सभी विभागाध्यक्षों एवं डा० पी०के० ओमरे द्वारा आयोजन कराया गया। जिसमें स्वास्थ्य संबंधी श्रेणी में निम्न गतिविधियां भी संचालित करायी गयीं।

1. मेराथन / हॉफ मेराथन
2. योगा कैंप
3. ब्लड डोनेशन कैंप
4. हैल्थ चेकअप कैंप
5. कोविड अवेयरनेस कैंप

The department organizes an online expert talk on “Disaster Management” at 4:30 pm in the conference hall of PCT under theme Civil 20. The speaker was Dr. Deepak Bansal, Joint General Manager, HUDCO (Housing & Urban Development Corporation Ltd.). Dr. Bansal explained about all the disasters in a very effective manner and their mitigation and management as the state Uttarakhand is prone to almost all types of disasters except Tsunami. The major emphasis was on earthquake. He discussed from the very first step *i.e.* zoning of India as per earthquake, functional design of buildings and then structural design of buildings for earthquake protection as per IS codes. He also discussed about retrofitting which is usually done for already existing building. Mr Bansal indexed his lectures into various types of disasters. Further each disaster is managed as pre disaster preparation, do’s and don’ts during the disaster and finally its mitigation after the disasters. The basic philosophy of management of each disaster is to minimize the life loss.



**Fig 1: Dr Deepak Bansal delivering online lecture on Disaster Management**



**Fig 2: The beneficiaries i.e. the students attending the talk**

Speaker:

**Dr. M.S. Karuna**

**Head, Department of Chemical Engineering University  
M J P Rohilkhand University  
Bareilly**

Dated : 27.09.2023

Dr. M.S. Karuna spoke on the topic environmental regulations for sustainable growth

He covered the following areas:

- (i) Provision for protection of environment in constitution of India
- (ii) Central government and state government regulations
- (iii) Pollution related laws
  - The water (Prevention and Control of Pollution) Act of 1974
  - Central Pollution law.
  - The Air (Prevention and Control of Pollution) Act of 1981 and amendment, 1987



- Environment (Protection) Act of 1986 (EPA, 1986)
- (iv) National green Tribunal act 2010 and its jurisdiction
- (v) Principles of justice adopted by NGT and challenges faced by NGT



Topic: **Applications of nanoparticles in biopolymer films**  
 Speaker : **Harish Kumar**  
**Faculty at Department of Chemical Engineering**  
**M J P Rohilkhand University**  
**Bareilly-243006, Uttar Pradesh, India**

Dr. Harish Kumar spoke on Applications of nanoparticles in biopolymer films. The summary of his take is follows:

Lignocellulosic materials are abundant on earth with their annual production around 1.815 billion tons. Indian agriculture is the world's second largest agro-based economies, and about 75% of its people depend on agriculture for their livelihood. As a result, large amounts of approximately 350 million tonnes of lignocellulosic biomass per year are available in India. The cell wall polysaccharides of lignocellulosic biomass are composed of cellulose, hemicelluloses, lignin. We have proposed the study of pre-treatment process for production of cellulose from lignocelluloses biomasses wastes. The selection of the appropriate pre-treatment method has several criteria: (1) Lignin structures breakdown (2) The methodology adopted should avoid the biomass particle reductions in size with less energy demand (3) Reduce the crystallinity of cellulose (4) Minimize energy requirements. The purpose of the pre-treatment is to reduce the cellulose's crystallinity, due to the elimination of lignin and hemicellulose. Pre-treatment methods generally classified into different categories: physical (milling and grinding), and microwave irradiation treatments, physicochemical (hydrothermal pre-treatment/liquid hot water treatment, and wet oxidation), chemical (alkali treatment, dilute acid, organic solvents),

biological. In our research work, we are generally focusing on the chemical pre-treatment method. This method is economically feasible, however to be used in a lab or full-scale process. Cellulose is the most common organic molecule and major structural unit of plants. It is the linear polymer chain of anhydroglucose units are bounded together by inter and intra-molecular hydrogen bonding. Cellulose fibers exist in both amorphous and crystalline nature. Cellulose derivative with carboxymethyl groups (-CH<sub>2</sub>-COOH) bound to some of the hydroxyl groups of the cellulose. Linear, long-chain, water-soluble, anionic polysaccharide. White- to cream-colored, tasteless, odourless, free flowing powder. Carboxy-methyl cellulose is a water soluble derivative formed by Mercerization (NaOH) and Etherification (MCA) process. CMC transforms the hydrophobic character of the cellulose to hydrophilic one. The substitution of hydrogen atoms by carboxymethyl groups makes it water soluble and reduces inter-intra particle interactions. The functional properties depend on - the degree of substitution (DS) of the CMC structure. CMC is widely used in detergents, foods, papers, paints, textiles, drugs, wound dressing and cosmetic industries. Nanotechnology is an important field of modern research dealing with design, synthesis, of particle structures ranging from approximately 1-100 nm. Nanoparticles (NPs) have wide range of applications in areas such as health care, cosmetics, food and feed, environmental health, mechanics, optics, biomedical sciences, chemical industries, electronics, space industries, drug delivery, energy science, single electron transistors, light emitters, nonlinear optical devices, and photo-electrochemical applications Recently, there has been a great interest to generate antibacterial hydrogels because of their superior biomedical relevance. Among them, silver, copper, zinc and aluminium based materials are of special interest owing to their broad spectrum inhibitory and strong bactericidal effect during the last few years, there has been an increased interest nanocomposite hydrogels as an antimicrobial agent in the medical field. Herbaceous plant such as grass generally has the lowest lignin content while softwood has highest lignin content. The primary packaging material for food products is plastic, which only degrades into petroleum chemicals that cannot be broken down by biological processes. There is growing interest in employing natural biopolymer-based packaging materials as safe replacements for synthetic polymer-based plastics. Since they have a wide range of mechanical qualities and are inexpensive, petroleum-based plastics, which have a long polymer chain, are currently employed extensively for numerous purposes. The sugar business is one of the agricultural subsectors that generate a significant quantity of waste biomass. The sugarcane

plant is a key crop in the global production of sugar. Up to 311 million tonnes of plastic were produced worldwide in 2014, increasing to 381 million tonnes in 2015, and a four-fold rise is anticipated by 2050, according to estimates. Recent research has made it clear that enhancing the film using nanoparticles (NPs) can fix these flaws. The development of nanotechnology has shown that biopolymers including starch, cellulose, protein, and chitosan may be transformed into nanoparticles via physical or chemical processes. Nanocomposites have significantly improved strength, heat resistance, and loss of adsorption capacity characteristics. Numerous studies have demonstrated that adding nanoparticles to polymers enhances their mechanical qualities, including tensile strength (TS), water vapor permeability (WVP), solubility, and elongation at break (EB). Silver nanoparticles (Ag-NPs), zinc oxide nanoparticles (ZnO-NPs), copper oxide nanoparticles (CuO-NPs), aluminum oxide nanoparticles (AlO-NPs), and metal oxide nanoparticles are being researched as novel inorganic antibacterial agents for possible use in food, the environment, and healthcare. The ability to stop microbial development is extraordinary with these antibacterial compounds. They are preferred since they interrelate with inorganic matter and do not harm live tissue in the biomedical and biotechnological fields. The production of Ag-NPs involves high-cost metal called silver. In comparison to silver, zinc, aluminum, and copper are more affordable and excel in a variety of biomedical appliances such as cellular testing, photo-thermal treatment, and insecticides. Ag-NPs, AlO-NPs, ZnO-NPs, and CuO-NPs were first utilized for antibacterial action and are still used today in a variety of antibacterial activity, including food packaging, surgical instruments, biomedical products, and items for water purification.



## **Report on Urban 20**

The Urban20 event held on September 25, 2023, was a dynamic gathering that brought together experts and thought leaders to delve into crucial topics surrounding urban food systems and sustainability. Among the notable speakers, Dr. Sarita Srivastava, a retired professor from the College of Home Science, Pantnagar, and Mr. Ashok Agarwal from KLA Foodpvt Ltd, Rudrapur, shared their insights on millet processing, value addition, and the global scenario of food safety in rice processing industries.

### ***1. Dr. Sarita Srivastava's Lecture on Millet Processing and Value Addition:***

Dr. Srivastava set the tone for the event with her engaging presentation on millet processing and value addition. With a wealth of experience in food and nutrition, she passionately discussed the nutritional benefits of millets and their potential in addressing food security challenges. Millets, often overlooked, emerged as a powerhouse of nutrients, offering sustainable and health-conscious alternatives.

The focus of Dr. Srivastava's talks extended beyond the nutritional aspect. She delved into innovative processing methods that not only retain the nutritional value of millets but also enhance their market appeal. The importance of value addition was a central theme, as she elucidated on various techniques to make millet-based products more attractive to consumers. Dr. Srivastava's insights opened a gateway for understanding the significance of incorporating millets into daily diets and their role in fostering sustainable food systems.

### ***2. Mr. Ashok Agarwal's Discussion on Global Food Safety in Rice Processing Industries:***

Following Dr. Srivastava's enlightening presentation, Mr. Ashok Agarwal, representing KLA Food, took the stage to provide a comprehensive overview of the global scenario of food safety and security, specifically within rice processing industries. With a keen focus on addressing challenges and opportunities, Mr. Agarwal's talk was instrumental in shedding light on the complexities of ensuring the safety of rice-based products throughout the supply chain.

Mr. Agarwal emphasized the need for a holistic approach to food safety, incorporating technology, international collaboration, and standardized practices. His discussion underscored the intricate challenges faced by the rice processing industry globally and the importance of aligning practices with regulatory measures. The audience gained valuable insights into the ever-

evolving landscape of food safety and security, recognizing the pivotal role played by advancements in technology and the need for a unified global approach.

### *Conclusion*

In conclusion, the Urban20 event on September 25, 2023, proved to be an intellectually stimulating platform, offering participants a deep dive into the realms of millet processing, value addition, and global food safety in rice processing industries. Dr.Sarita Srivastava and Mr. Ashok Agarwal's presentations not only expanded the audience's understanding of these topics but also instilled a sense of urgency and responsibility in navigating the challenges of our current food systems. The event served as a catalyst for fostering dialogue and collaboration towards more sustainable and secure urban food practices.