IDP-NAHEP Pantnagar Updates

G. B. Pant University of Agriculture & Technology
Pantnagar 263145, Uttarakhand

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Message of IDP Leader, GBPUAT, Pantnagar

New Education Policy and NAHEP

The New Education Policy of India is revolutionary in its concept and requires implementation in the same spirit. The aspects of vocationalization of education, multidisciplinarity in academic institutes, multiple entry exit into degree programmes, and innovation based teaching-learning are the key highlights. These aspects are extremely pertinent with respect to agricultural education and at Pantnagar University we are making all efforts to materialize these aspects into our system. The World Bank funded project National Agricultural Higher Education Project (NAHEP) which is currently running in Pantnagar University is providing us the required momentum in implementation of the varied aspects of New Education Policy. The mandates of NAHEP have high alignment with the mandates of New Education Policy and thus the different developmental initiatives of NAHEP team at Pantnagar are playing a critical role. The multidisciplinary working teams of NAHEP, the advanced laboratories established in areas of artificial intelligence and robotics, the multidisciplinary workshops and trainings, the foreign expert classes, the establishment of first ever innovation and incubation centre, the development of digital classrooms and advanced virtual lab with 3D and virtual reality systems, and many more novel academic innovations of NAHEP team have laid the foundation for effective implementation of New Education Policy in Pantnagar University.

(Tej Partap)

A Step for Equity, Inclusivity, and Opportunities

Sanitary Napkin Vending Machines Installed in Colleges and Hostels by IDP Pantnagar

The IDP-NAHEP project at Pantnagar has been making contributions in several such areas which were not eagerly addressed. One such area of concern being social and gender equity. Recently, the IDP team took the initiative of installing sanitary napkin vending machines across into different colleges and some hostels of the University. As of now, these vending machines have been installed in College of Agriculture, College of Basic Sciences and Humanities, College of Fisheries, College of Home Science, College of Veterinary and Animal Sciences, Gandhi Bhawan Hostel and Mandakini Bhawan Hostel. It is for the first time that such an initiative has been taken in the

University. The IDP Pantnagar team is committed to take many more initiatives in order to make Pantnagar a more equitable and inclusive campus.

Online Workshop Held on Startup Ecosystem and Its Stakeholders

Entrepreneurship is not for the faint hearted, it requires immense strength of mind and heart. The Innovation and Incubation Centre of IDP-NAHEP, Pantnagar aims to develop this tensile strength among Pantnagar University graduates for which varied interventions are made on a regular basis. On January 27, 2021 an online workshop was organized on *Startup Ecosystem and Its Stakeholders*. The workshop was conducted in collaboration with Headstart Network Foundation and Mr. Rajat Jain, Managing Director and Founder, Sunfox Technologies was the lead mentor of the workshop. The workshop focused on the requirements of every aspiring entrepreneur who wants to launch their dream startup but have no idea where to begin. The process of development of entrepreneurship was highlighted and how one can convert his/her innovation into an efficient business model in the startup ecosystem was also discussed. The role of resources present around one plays important role in giving shape to startups and the role of environment and incubation in nurturing the newly born startups was also told by the workshop mentor. Further, the workshop mentor informed the participants how an idea/concept is framed into

product and life cycle of the startups (prototypes to final product scaling).

In the end, Mr. Jain shared a real-life experience of entrepreneurship and a case study with the participants. He elaborated facts and ground reality from the success to failure during the journey of startups and encouraged participants to start working on their dream startup. The workshop emerged successful and the participants even came to know that how IDP-NAHEP, Pantnagar is helping University students in strengthening their startup ideas by providing proper guidance and resources. The workshop was interesting and provoking for those aspiring to be an entrepreneur or either having any startups.

Road Safety Initiatives by IDP Pantnagar

Road Barricades and Convex Mirrors Placed in University Campus

The Ministry of Road Transport and Highways, Govt. of India announced that the National Road Safety Month will be observed from January 18, 2021 to February 17, 2021 and the theme of this month long campaign will be *Sadak Suraksha - Jeevan Raksha*. During this time period, the IDP-NAHEP, Pantnagar also took an important initiative for ensuring road safety in the campus of Pantnagar University. Road barricades and convex mirrors were placed on important roads and critical turning points across the University campus. On January 22, 2021 an event was held in the premises of University Centre - NAHEP Building wherein Hon'ble Vice-Chancellor Dr. Tej Partap handed over the road barricades and convex mirrors to University Security Officer. On this occasion, he also highlighted the significance of road safety aspects and the need to promote and create awareness about road safety issues in order to draw required public

attention. Dr. A.K. Upadhyay, Nodal Officer ESS, IDP-NAHEP, Pantnagar shared that how due to lack of stringent road safety rules and absence of appropriate road safety equipments thousands of individuals face detrimental consequences. He further said that this initiative of IDP Pantnagar team will go a long way in ensuring the safety of residents of the University campus. The event witnessed the presence of other deans, directors, and faculty members.

Students Trained on Applications of Sensors in Smart Farming

The Agri-Informatics component of IDP-NAHEP, Pantnagar organized a two days online training programme on January 8-9, 2021 on Microsoft Teams platform. The training programme was directed towards understanding the role of sensors and senor based technologies in farming and the expert of the training was Dr. Neelima Mishra, Director, First Automation Private Limited, Rajasthan.

The day one of the training revolved around the applications and working of agricultural robots. The expert depicted how autonomous harvesting robot harvested sweet-pepper in a greenhouse. Thereafter she explained about types of sensors and their role in agriculture. The different types of sensors included location sensors, optical sensors, electro-chemical sensors, mechanical sensors, dielectric soil moisture sensors, and air flow sensors. These sensor outputs can be varied and may give information on yield monitoring, yield mapping, variable rate fertilizer, weed mapping, variable spraying, topography and boundaries, and guidance systems for positioning of agricultural machines and vehicles. Dr. Mishra then talked briefly about crop sensing technology and its basic working principles and precision farming and its technologies.

The second day of the training focused majorly on wireless sensor network and its application in irrigation system. Dr. Mishra elaborated on the concept of smart irrigation. She told that smart irrigation controllers and sensors have been developed to reduce outdoor water use by providing irrigation based on plant water needs as compared to traditional automatic system timers. Then she talked about the different types of sensors used in the irrigation systems which included water level sensor, climate-based controllers, and soil moisture sensor. Towards the end, she touched the aspects of designing moisture detection devices and rain detection devices. The training received an extremely enthusiastic response and a total of 144 participants were a part of this two days training programme. Dr. Rajeev Ranjan and Dr. R.S. Rajput, members of Agri-Informatics team of IDP-NAHEP, Pantnagar coordinated the training programme.

Quantitative Aspects of Farming Systems Discussed in Two Days Online Training

A two days online training on the topic *Quantitative Analysis of Farming System* was organized by IDP-NAHEP, Pantnagar from January 25-26, 2021. The expert of this training was Dr. A.K. Prusty, Senior Scientist, ICAR-Indian Institute of Farming System Research, Modipuram.

The first day marked the introduction of the topic wherein Dr. Prusty highlighted on the aspect of capturing farm diversity using typology. He told about complexity of household diversity and factors influencing diversity. He further described the need for farming system typology. Dr. Prusty explained his participants how to construct typology and the purposes of developing typologies. He talked about various analytical tools used for farming system typologies and different steps for conducting typologies. On the second day of the training, he threw light on the redesigning of farming system using quantitative analysis tools. He explained about the farming situation in India and informed that farm holding size in India has been declining over years. He further emphasized on the strengths, weakness, opportunities and threats of small holder farming in India. He also described how to apply quantitative assessment tools in farming system wherein he gave the examples of farm design that provides improved understanding of the farms, for instance reallocation of crops and uptake of alternative cropping pattern could improve farm performance thereby maximising income, dietary energy yield, soil organic matter balance and minimizing pesticide use.

As closing remarks of the workshop, he reiterated on the application of quantitative analysis for effective targeting of practises that will help to close the gap between researchers and farmers.

IDP Pantnagar Continues with International Lecture Series

11 Experts from 4 Countries Nurture Pantnagar Students

Ms. Nupur Kukrety
Policy Specialist, Social Protection, Programme Division, UNICEF Headquarters, New York, USA

Lecture Topic: **Humanitarian Sector: A Career Perspective for Community Science Students**

Dr. Asim Biswas
Associate Professor, School of Environmental Science, University of Guelph, Ontario, Canada

Lecture Topic: **Soil Sensing for Crops Input Management**

Mr. Daniel Saurette
Land Resource Specialist, Ontario Ministry of Agriculture, Food and Rural Affairs, Canada

Lecture Topic: **Digital Soil Mapping and Recent Initiatives**

Dr. B.B. Singh
Visiting Professor and Senior Fellow, Department of Soil and Crop Science, Borlaug Institute for International Agriculture, Texas A&M University, USA

Lecture Topic: **Breeding for Resistance to Biotic and Abiotic Stresses and Development of Bt-Cowpea**

Dr. Arnon Karneili
Director of Remote Sensing Lab, Jacob Blaustan Institutes for Desert Research, Ben Gurion University of Negev, Israel

Lecture Topic: **Advances in Remote Sensing and Machine Learning Techniques for Agriculture Applications**

Dr. Arun Pattathal Vijayakumar
Post Doctoral Researcher, Director of Remote Sensing Lab, Jacob Blaustan Institutes for Desert Research, Ben Gurion University of Negev, Israel

Lecture Topic: **Advances in Remote Sensing and Machine Learning Techniques for Agriculture Applications**

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Dr. Dharmesh Verma
Former Global Head Technical, RNZ International, Dubai, UAE

Lecture Topic: **Advances in Remote Sensing and Machine Learning Techniques for Agriculture Applications**

Dr. B.B. Singh
Visiting Professor and Senior Fellow, Department of Soil and Crop Science, Borlaug Institute for International Agriculture, Texas A&M University, USA

Lecture Topic: **Sustained Food Security in India: Need for Multi-Institutional Collaboration**

Dr. K. Muthukumarappan
Distinguished Professor, Department of Agricultural Engineering, South Dakota State University, USA

Lecture Topic: **Advances in Food Processing**

Dr. Rameshwar S. Kanwar
Charles F. Curtiss Distinguished Professor, Department of Agricultural and Biosystems Engineering, Iowa State University, USA

Lecture Topic: **Sustainable Agricultural Production and Hydrologic Systems**

Dr. Manoj Karkee
Associate Professor, Biological Systems Engineering Department, Center for Precision and Automated Agricultural Systems, Washington State University, USA

Lecture Topic: **AI and Robotics in Specialty Crop Agriculture**

Dr. C. B. Singh
Applied Research Chair, Lethbridge College, Canada

Lecture Topic: **Sensing and Automation in Agriculture**

Initiatives and Achievements of IDP-NAHEP, Pantnagar

- The Language Lab component of IDP-NAHEP, Pantnagar began the classes for new batch of German and French Language Certificate Course from January 11, 2021. The courses will be running in two modes, the A1 level beginner course and the A2 level advanced course. A total of 185 participants have registered for A1 level and 25 participants have registered for A2 level course.

- Under the IDP Golden Points Scheme, top 29 students with highest scores will be given one month special NAHEP Internship Pathshala on STEP (Skill, Talent, Entrepreneurship, Performance). The students will have a chance to get guidance by industry experts, foreign faculty members and entrepreneurs. These undergraduate students are those who participated in maximum IDP-NAHEP events.

- The first phase of three months online certificate courses initiated by IDP-NAHEP, Pantnagar has been successfully completed along with final evaluation. In the first phase, five courses were launched namely, Protected Cultivation of Horticultural Crops, Sericulture, Mass Production of Bio-Control Agents, Beekeeping, and Nursery Production and Management, and a total of 152 participants completed the course successfully.

- The classes for three months online certificate courses launched in the second phase by IDP-NAHEP, Pantnagar were completed on January 16, 2021. The courses launched in the second phase were Computer Aided Textile Designing, Mushroom Cultivation, Indian Monsoon, Weather Forecasting and Agromet Advisory Services, Processing of Fruits, Vegetables and Spices, and Seed Production Technology. A total of 60 weekly webinars and 10 expert webinars were held as a part of these online certificate courses other than regular weekly lectures. The final evaluation will be completed soon.

- The IDP-NAHEP, Pantnagar took the lead in digitalization of the teaching-learning systems of the University during the pandemic period and is still continuing with its capacity building and counselling initiatives. Recently, Microsoft Teams account were created and provided to 511 new students who took admission in PG and Ph.D. programmes of various departments across the University in order to facilitate smooth conduct of online classes and other academic activities.

- The IDP-NAHEP, Pantnagar facilitated the infrastructure development across the University by taking need based initiatives. 300 LED lights were installed in black zone areas of the University, the sound bars and mic system were installed in digital classrooms of the University to improve the quality of sound during online teaching, and BSNL leased line was installed in college areas to ensure uninterrupted internet connectivity for varied academic activities.

The Main Events of February 2021

S. No.	Event	Proposed Date	Venue	Nodal Unit	Convener
1.	Two days Training on Crop Health Monitoring using Geospatial Technology	01-02-2021 to 02-02-2021	Online	Agri-Informatics Team	Dr. A.S. Nain, College of Agriculture
2.	Interactive Session on Emerging Multi-Satellite Dataset Techniques in Farming World	09-02-2021	Online	Agri-Informatics Team	Dr. A.S. Nain, College of Agriculture
3.	Two Days Training on A Multi-Criteria Approach for Urban Stormwater and Flood Management Using Remote Sensing Technology	11-02-2021 to 12-02-2021	Online	Agri-Informatics Team	Dr. A.S. Nain, College of Agriculture
4.	30-hour Online Remedial Crash Course on Agriculture for Aspirants of JRF and Other Competitions	13-02-2021	Online	Academic Team	Dr. S.K. Guru, College of Basic Sciences and Humanities
5.	Interactive Session on Herbicide-Resistant Weeds and their Management	16-02-2021	Online	Academic Team	Dr. S.K. Guru, College of Basic Sciences and Humanities
6.	Workshop on Startup Idea Validation	20-02-2021	Online	Innovation and Incubation Centre Team	Dr. A.K. Upadhyay, College of Veterinary and Animal Sciences
7.	Two Weeks Online Short-Term Course on Development of Mobile Application for Agricultural World	22-02-2021 to 09-03-2021	Online	Agri-Informatics Team	Dr. A.S. Nain, College of Agriculture
8.	Online guest lecture series on Prospective Role of Agricultural Engineering in World Market-Series 2	23-02-2021 Onwards	Online	Academic Team	Dr. S.K. Guru, College of Basic Sciences and Humanities
9.	Faculty Development Training on Being Effective for Design, Development and Delievery in Virtual Classroom Teaching	25-02-2021 to 26-02-2021	Online	Faculty Development Centre Team	Dr. S.K. Guru, College of Basic Sciences and Humanities

What to Retain, What to Refrain

Dr. S.K. Kashyap
Dean, College of Agriculture/PI, IDP-NAHEP, Pantnagar

The last one year has been an entirely unexpected different time period. However, this one year was of immense learning and one of its kind opportunity for academic institutes. The wave of digitalization took us from one age to another and Pantnagar University took a giant leap in terms of infrastructure development and capacity building of faculty members and students. Now, when the University has resumed its operations in offline mode, students are back to campus and classes have begun offline, it becomes important to analyze what we need to retain from the learnings and systems of past one year and what we need to refrain from. The utilization of digital platforms for teaching-learning could be continued partially in terms of retaining the virtual groups for sharing assignments and after class queries, including overseas and industry experts into classes, providing simulation tasks, using videos and other digital aids for enhancing learning experience, etc. The positive experiences of digital teaching-learning should be integrated with offline teaching-learning system, while refraining from complete online teaching and online evaluation is suggested. The IDP-NAHEP, Pantnagar is now executing its activities and events in a new hybrid mode to make the best utilization of our digital learnings and at the same time resuming the best practices of earlier offline systems.