



Three Weeks Online Short-Term Course to NAHEP-CAAST-VNMKV Students on

Application of Digital Technologies for Smart Agriculture

Under Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs (DFSRDA) Project, NAHEP-CAAST, ICAR, New Delhi

10-28 August 2020

About NAHEP-CAAST Project

Centre for Advanced Agricultural Sciences and Technology (CAAST) under World Bank Sponsored National Agricultural Higher Education Project (NAHEP) of Indian Council of Agricultural Research (ICAR), New Delhi is paramount to develop and adopt the knowledge-intensive agriculture education to enhance the agricultural productivity. Agricultural Post-Graduates and Doctoral students are the target objectives to develop the quality human resource in digital technology with appropriately equipped by knowledge and their expertise in frontier areas of agricultural science and technology. The desired traits and skills could be instrumental for market-driven research and rapid adoption of advanced agricultural practices. Moreover, emphasis is being placed upon inclusiveness and equity aspects of the access to agricultural higher education. The project envisages the enhancement of quality and relevance of the agricultural higher education to the agricultural university students. The NAHEP centre is integrated by three interdisciplinary research divisions such as Agribots, Agri-Drones and Agri-AGV's based on four portfolios:

1. Climate-based Digital Knowledge Support Centre. (CDKS)
2. Seed/Seedling Processing and Nursery Automation Centre. (SSPN)
3. Smart Portable Machinery Centre. (SPM)
4. Food Processing Automation Centre. (FPA)

Project Knowledge Partner

NAHEP-CAAST-IIT Bombay, Indian Institute of Technology Bombay, Powai, Mumbai 400 076, Maharashtra, India

1. (Knowledge Centre).

Aim of the centre is to conduct the research in the area of Agri-Robots, Agri-Drones and Agri-AGVs and to train the PG / Ph.D and Faculty members of NAHEP-CAAST-VNMKV.

Principal Investigator : Prof. Amit Arora, IIT Bombay
Co-Principal Investigator: Prof. Satish Agnihotri, IIT Bombay.
Co-Principal Investigator: Prof. Kavi Arya, IIT Bombay

2. NAHEP-CAAST-VNMKV, Vasantaro Naik Marathwada Krishi Vidyapeeth, Parbhani-431402, Maharashtra, India (Centre of Excellence).

Aim of the centre is to establish the advanced academic and research facilities, to establish University and Industry Interface in the area of Agri-Robots, Agri-Drones and Agri-AGVs keeping IIT Kharagpur as one of the knowledge Partner.

Principal Investigator : Dr. G.U. Shinde, Team Leader and Assistant Professor, FMPE, VNMKV, Parbhani
Co-Principal Investigator : Dr. R.P Kadam, Professor, Extension Dept., VNMKV Parbhani
Co-Principal Investigator & Coordinator : Er. Sanjay N. Pawar, Asst. Professor, CAET, VNMKV, Parbhani

About the Short-Term Course

In this time of crisis, well rounded and effective educational practice is what is needed for the capacity building of young minds.

The three-weeks online short-term training on “**Application of Digital Technologies for Smart Agriculture**” is organized under the project “Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs” under National Agricultural Higher Education Project (NAHEP) sponsored by CAAST, ICAR New Delhi, headed by **Associate Prof. Amit Arora, IIT Bombay** and PI-NAHEP-CAAST-IIT Bombay. This short-term course aims to enlighten the participants in the areas of Sensors, Drones, Robots, Artificial Intelligence and Machine Learning, Machine Vision Technology-based, and Advanced Digital Technology application in Agriculture and allied science's for enhancing the productivity with minimal effort and cost.

PG/Ph.D. Students, Faculties, Scientists of Vasantaro Marathwada Krishi Vidyapeeth, Parbhani are eligible to register and are requested to take the advantage of the three weeks online short-term course from 10th August 2020 to 28th August 2020.

Interested candidates can contact Er. S. N Pawar, Assistant Professor, Agril Engineer and Co-PI (SPM) of NAHEP-CAAST-VNMKV, Parbhani to register their names at e-mail: nahep.caast.vnmkv@gmail.com. Daily lectures as per the schedule are live telecasted through online platform with tutorials and online discussions by the renowned professors in the domain area from Centre for Technology Alternatives for Rural Areas (CTARA) Centre, IIT Bombay.

This training would definitely develop skills that will drive their employability, Productivity and wellbeing in the decades to come and ensure the overall progress of India.



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Short-Term Course Schedule

S. No.	Date	Time	Resource Person	Topic
1	10-08-2020	4:00 - 4:30 PM	IIT Bombay Team	Online-Inauguration of the Short-term Course
2	10-08-2020 (Monday)	4:45 - 6:30 PM	Prof. Amit Arora (CTARA, IIT Bombay)	Introduction to Indian Agriculture, Advances in Crop Management
1	11-08-2020 (Tuesday)	10:30 AM - 12:00 PM	Prof. Kavi Arya (CSE, IIT Bombay)	E-Yantra and K-Yantra
2		4:00 - 5:30 PM	Prof. Kavi Arya (CSE, IIT Bombay)	E-Yantra and K-Yantra
1	12-08-2020 (Wednesday)	11:00 AM - 12:30 PM	Prof. Maryam Shojaei Baghini (EE, IIT Bombay)	Sensors in Agriculture
2		4:00 - 5:30 PM	Divya Singh (CTARA, IIT Bombay)	Electronics 101
1	13-08-2020 (Thursday)	11:00 AM - 12:30 PM	Prof. Mahima Arrawatia (EEE, IIT Guwahati)	IoT Applications in Agriculture
2		4:00 - 5:30 PM	Prof. Mahima Arrawatia (EEE, IIT Guwahati)	IoT Applications in Agriculture
1	14-08-2020 (Friday)	10:30 AM - 12:00 PM	Divya Singh (CTARA, IIT Bombay)	Let's learn Circuits
2		4:00 - 5:30 PM	Divya Singh (CTARA, IIT Bombay)	Tutorial
Week-2				
1	17-08-2020 (Monday)	10:30 AM - 12:00 PM	Dr. Ipsita Das (IIT Bombay)	Precision Agriculture
2		3:30 - 5:00 PM	Dr. Ipsita Das (IIT Bombay)	Precision Agriculture
1	18-08-2020 (Tuesday)	10:30 AM - 12:00 PM	Prof. Amit Arora (CTARA, IIT Bombay)	Automation in Agriculture (Green House, Farm implements)
2		3:30 - 5:00 PM	Prof. Amit Arora (CTARA, IIT Bombay)	Automation in Food Processing
1	19-08-2020 (Wednesday)	10:30 AM - 12:30 PM	Prof Asim Tewari (ME, IIT Bombay)	Introduction to Artificial Intelligence
2		3:30 - 5:30 PM	Prof Asim Tewari (ME, IIT Bombay)	Introduction to Artificial Intelligence
1	20-08-2020 (Thursday)	10:30 AM - 12:00 PM	Prof. Vishal Sardeshpande (CTARA, IIT Bombay)	Automation in Food Processing
2		3:30 - 4:00 PM	Aniket Deo (CTARA, IIT Bombay)	Crop Planning (Case study)
3		4:00 - 4:30PM	Mayur Nilawar (CTARA, IIT Bombay)	Climate Smart Storage Structures (Case study)
4		4:30 - 5:00 PM	Divya Singh (CTARA, IIT Bombay)	Automation in Agriculture (Case study)
1	21-08-2020 (Friday)	10:30 AM- 12:30 PM	Prof. Pennan Chinnasamy (CTARA, IIT Bombay)	Application of GIS and RS in Agriculture (Part-1)
2		3:30 - 5:30 PM	Prof. Pennan Chinnasamy (CTARA, IIT Bombay)	Application of GIS and RS in Agriculture (Part-1)
Week-3				
1	24-08-2020 (Monday)	10:30 AM- 12:00 PM	Prof. Amit Arora (CTARA, IIT Bombay)	Data Analysis (Part-1)
2		3:30 - 5:00 PM	Prof. Amit Arora (CTARA, IIT Bombay)	Data Analysis (Part-2)
1	25-08-2020 (Tuesday)	10:30 AM- 12:00 PM	Shruti Kaushikbhai Bhatt (CTARA, IIT Bombay)	Bioinformatics
2		3:30 - 5:30 PM	Prof. Pennan Chinnasamy (CTARA, IIT Bombay)	Application of GIS and RS in Agriculture (Part-2)
1	26-08-2020 (Wednesday)	10:30 AM - 12:30 PM	Prof. Pennan Chinnasamy (CTARA, IIT Bombay)	Application of GIS and RS in Agriculture (Part-3)
2		3:30 - 5:30 PM	Prof. Pennan Chinnasamy (CTARA, IIT Bombay)	Application of GIS and RS in Agriculture (Part-3)
1	27-08-2020 (Thursday)	10:30 AM - 11:15 AM	Vennam Thirumal Reddy (CTARA, IIT Bombay)	Spatial Statistics
		11:15 AM- 12:30 PM	Aman Lonare (CTARA, IIT Bombay)	GIS applications for Agriculture (Case study)
2		3:30 - 5:00 PM	Prof. Amit Arora (CTARA, IIT Bombay)	Data Analysis (Part-3)
1	28-08-2020 (Friday)	10:30 AM - 12:00 PM	Prof. Amit Arora (CTARA, IIT Bombay)	Feedback
2		3:30 - 5:00 PM	IIT Bombay Team	Online-Valedictory Function of the Short-term Course