Three Weeks Certificate Course on

Drones for Precision Agriculture: Spraying and Hyperspectral Imaging

24 August - 13 September, 2022

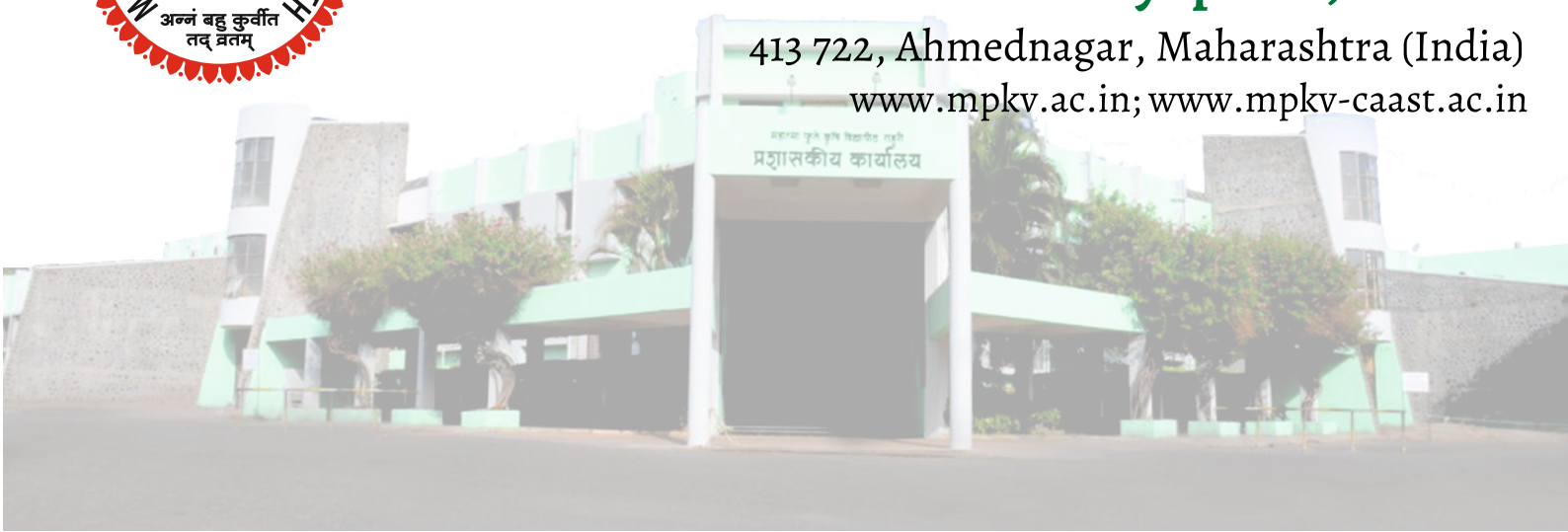
Centre of Excellence for Digital Agriculture and ICAR-NAHEP

Centre for Advanced Agricultural Science and Technology for Climate Smart Agriculture and Water Management (CAAST-CSAWM)

Mahatma Phule Krishi Vidyapeeth, Rahuri

413 722, Ahmednagar, Maharashtra (India)

www.mpkv.ac.in; www.mpkv-caast.ac.in



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About

The project entitled **Centre for Advanced Agricultural Science and Technology (CAAST) on Climate Smart Agriculture and Water Management (CSAWM)"** is being implemented in Mahatma Phule Krishi Vidyapeeth (An Agricultural University), Rahuri, Maharashtra under World Bank Sponsored National Agricultural Higher Education Project (NAHEP) of Indian Council of Agricultural Research (ICAR), New Delhi, Government of India, since 2018 with objectives of developing the capacity amongst the faculties, students, practitioner, entrepreneur etc. Further in continuation Centre of Excellence for Digital Agriculture has been established in Mahatma Phule Krishi Vidyapeeth, Rahuri to promote the educational, research, capacity building and development activities for application of digital technologies in agriculture including drones.

Background

There is growing need of using the inputs for agriculture with precision for enhancing the economic productivity, input use efficiency; and environmental sustainability. Hence, Indian agriculture is transforming from the traditional to precision agriculture. The application of digital technologies has the major role for this transformation. The digital technologies that can be used for precision application of inputs in agriculture are sensors, drones, robotics, IoT, AI & ML and geo-informatics. All these technologies are not alternative to each other but complements each other.

Drone aka. Unmanned Aerial Vehicle (UAV) is one of the formidable technologies that have found potential application in agriculture. Drones have two major applications in agriculture. These are i) Inputs Application and ii) Resource mapping. The inputs such as nutrients, fertilizers, chemicals (insect & pest) can be sprayed; and similarly, the seeding can also be performed with drones.

The drones can also be mounted with devices/ sensors for resource mapping including identification of crop, crop area, abiotic and biotic stresses assessment, crop damage assessment, nutrient stress detection and soil moisture content detection. Drone mounted hyperspectral sensors capture the image of surface (land, water, canopy, etc) in the form of electromagnetic spectrum. Hyperspectral imaging sensing is a cutting-edge spectrometry-based sensing technology and is emerging technique to support the precision and climate smart agriculture.

The Government of India and Maharashtra have promoted the use of drones in agriculture. Drone has huge potential and it's use in agriculture can ignite a big change in improving the efficiency of agriculture. As a result, there will be a huge demand for trained manpower in drones. Keeping this in view, three weeks certificate course on "Drones for Precision Agriculture: Spraying and Hyperspectral Imaging" is being jointly organized from **24 August - 13 September, 2022** by the Centre of Excellence for Digital Agriculture and CAAST-CSAWM, MPKV, Rahuri, with the following objectives.

1. To understand the fundamentals of drone and its application domain.
2. To acquaint with the different drone components and its integration.

3.To understand the drone aerodynamics.

4.To learn how to configure, calibrate and plan a field mission for drones.

5.To study and understand hyperspectral imaging application for agriculture using drones.

6.To acquaint with current operational rules, regulatory guidelines and understand ethics/ privacy associated with drone flight.

The training course will be conducted on campus, where the trainees will have hands-on practice of drone technologies.

Methodology for conduct of course

Pre and Post Evaluation: Pre and post training program evaluation for the impact evaluation of the training program.

Conduct of the Certificate course: The training program will consist of hybrid mode (online+offline) lectures, discussions, demonstrations, tutorials, case studies, experience sharing from scientists in relation to drones applications for precision agriculture.

Project Reports: The candidates are required to complete the case study based project reports (individual and group).

Evaluation: There will be evaluation of the candidates at the end of the each week, and final evaluation to wards the end of the course. Evaluation will be in the form of Multiple Choice Questions (MCQs), descriptive questions and power point presentation.

Duration: **24 Aug. - 13 Sept., 2022** (Three Weeks)

No. of seats: 20 seats on"First-Come-First-Serve" basis

Course fee

Registration fee: Rs.100/-

Course fee: Rs.15000/- (Non-refundable)

However, course fee for registered MPKV Rahuri students will be 50% of prescribed course fee.

Important dates:

Last date of application: **17 Aug., 2022**

Confirmation of admission to the candidates:

18 Aug., 2022

Language of Instruction: English

Accommodation: Accommodation will be available in Scientist Hostel of MPKV Rahuri. The charges in respect of the stay will be borne by the participant. Accommodation charges will be Rs. 200/- per day per person.

Boarding:

The charges of breakfast, lunch and dinner will be approximately Rs. 250/- per day per person.

Travel: The participants need to make their own travel arrangement to central campus MPKV, Rahuri. However, transportation will be provided to the participant boarding at Manmad, Rahuri and Ahmednagar railway station and Shirdi airport.

Who can apply?

Faculty Members, Scientist, Students of Agriculture, Agril. Engg. and other Engineering disciplines, Govt. Officers, Non-Govt. Officers, Extension personnel, KVK Officers, Industry persons or any individual who is working and/or is interested in the field of precision agriculture.

Mode of application

Interested candidates should visit following link to register for the certificate course.

Link: http://www.mpkv-caast.ac.in/page/certificatecourses

Categories for payment

1. **For students belonging to constituent colleges of MPKV Rahuri:** Candidates need to select "MPKV Student Offline 3 Week Drones in Agriculture" category while submitting the form.
2. **For candidates except students from constituent colleges of MPKV Rahuri and other University:** Candidates need to select "Non MPKV Offline 3 Week Drones in Agriculture" category while submitting the form.

Documents required while applying

- ***MPKV students (Constituent colleges):*** The office reference number of "No Objection Certificate" in case of students and "Permission Letter" in case of sta£f in the box provided in the form; and email the scan copy of the "No Objection Certificate" or "Permission Letter" as the case may be to "mpkvcaast@gmail.com".
- ***Non MPKV Candidates (Except MPKV students):*** The documents in support of minimum eligibility for attending the training /program to be emailed to "mpkvcaast@gmail.com".

It will be the responsibility of the concerned candidate to obtain the permission of the concerned organization, if necessary (in case of non an MPKV candidate).

For details, refer guideline by clicking here: https://qrgo.page.link/oxaBG

Scan following QR code for Registration & Course Guidelines

Patrons

- **Dr. Prashantkumar G. Patil,** Hon'.Vice-Chancellor, Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri, Maharashtra State, India
- **Dr. Rakesh Chandra Agrawal,** Deputy Director General (Edn.) and National Director (NAHEP), Indian Council of Agricultural Research,New Delhi, India

Advisors

- **Dr. Anuradha Agrawal,** National Coordinator (CAAST), ICAR-NAHEP, New Delhi, India
- **Dr. Pramod Rasal,** Dean (F/A) and Director of Instruction, MPKV.,Rahuri,India

Convenor

- **Dr. Sunil Gorantiwar**, Principal Investigator (CAAST-CSAWM) and Head (Agril. Engg.), MPKV., Rahuri, India

Co-Convenor

- **Dr. Mukund Shinde**, Co-Principal Investigator (CAAST-CSAWM) and Professor (SWCE), MPKV., Rahuri, India

Course Director

- **Dr. Sachin Nalawade**, Head (Farm Machinery and Power Engineering),Team Member, CAAST CSAWM, MPKV., Rahuri, India - Email: smnalawade1975@gmail.com, Mob:+91-9422382049

Joint Course Director

- **Dr. Sunil Kadam**, Associate Professor (Irrigation and Drainage Engineering), Team Member, CAAST-CSAWM, MPKV., Rahuri, India - Email:sunil21075@gmail.com, Mob:+91-9403606302

Course Co-ordinators

Dr. Girishkumar Bhanage, Research Associate (Farm Machinery and Power Engineering), CAAST-CSAWM, MPKV., Rahuri, India, Email:gbhanage1588@gmail.com, Mob:+91-8855094029

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Organized By
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