



**Two Weeks Online E-Course**

**on**

**“ADVANCE HYDROPONICS & POLYHOUSE AUTOMATION”**

**04<sup>th</sup> to 16<sup>th</sup> October, 2021**



**National Agriculture Higher Education Project**

**Centre of Excellence : Digital Farming Solutions for Enhancing Productivity by  
Robots, Drones and AGV's (DFSRDA)**

**Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani (M.S.) INDIA**

## About University

The Marathwada Krishi Vidyapeeth (Presently renamed as Vasanttrao Naik Marathwada Krishi Vidyapeeth) established in 1972 on Land Grant pattern at Parbhani to fulfill the regional aspirations of fields, undertake research and facilitate technology transfer in marathwada region of Maharashtra.

Vasanttrao Naik Marathwada Krishi Vidyapeeth (VNMKV) Parbhani, is one of the prestigious agricultural universities in India. Since its inception, it has gained recognition as an innovative organization in the term of education and research in agriculture. It takes care of research and facilitates agriculture technology transfer in marathwada region of Maharashtra .

## About Project

The Centre of excellence for Digital Farming solutions for Enhancing Productivity by Robots, Drones and AGV's (DFSRDA) Under Center for Advanced Agricultural Science and Technology (CAAST) is being implemented in Vasanttrao Naik Marathwada Krishi Vidyapeeth, Parbhani, Maharashtra under world bank Sponsored National Agricultural Higher Education Project (NAHEP) of Indian Council of Agricultural Research (ICAR), New Delhi, Government of India, Since 2019. The main objective of this center is to train PG/PhD students and faculties about advances in science and technology. The project is proposed on 50:50 cost sharing basis between the World Bank and the Government of India, implemented at VNMKV, Parbhani. Overall, the project aims to establish an advanced basic engineering hardware and software setup such as Mechatronics, CAD/CAM/CAE, 3-D Printers and Instrumentation Laboratories for Agribots, Agri-drones and Agri-AGVs., so that a holistic model can be developed to raise the standard of current agricultural education system that provides more jobs and is entrepreneurship oriented and on par with the global agriculture education standards.

As a part of this project, Centre of excellence for Digital Farming solutions for Enhancing Productivity by Robots, Drones and AGV's (DFSRDA), VNMKV, Parbhani is organizing Two Weeks Online E-course on "Advance Hydroponics & Polyhouse Automation"

## Course Background

Farming is the ancient occupation in every civilization. It plays an important role in reforming human civilization. As the technological breakthrough occurs in farming practices it gives the positive effect on productivity, in similar on another side the population of the world is increase. Increasing population and their need land requirement and food it create stress on the economy as the population increase convert the rural area in to urban area , drastic demand of expansion of city grab the framing land and increase the toxicity in nature. Interest in urban agriculture has been spurred by a confluence of factors, most notably the demographic shift leading to two-thirds of the world's population becoming urbanized by 2050. Food scarcity is the horrific situation occurred in dance populated countries. Almost one in seven people are lacking of food and hunger around the world.

Due to rapid urbanization and industrialization as well as impact of global warming and population growth land under cultivation is further going to decrease. Again, soil fertility status has attained a saturation level, and productivity is not increasing further with increased level of fertilizer application. Besides, poor soil fertility in some of the cultivable areas, less chance of natural soil fertility build-up by microbes due to continuous cultivation, frequent drought conditions and unpredictability of climate and weather patterns, rise in temperature, river pollution, poor water management and wastage of huge amount of water, decline in ground water level, etc. are threatening food production under conventional soil-based agriculture. Under such circumstances, in near future it will become impossible to feed the entire population using open field system of agricultural production only.

Naturally, soil-less culture is becoming more relevant in the present scenario, to cope-up with these challenges. In soil-less culture, plants are raised without soil. Improved space and water conserving methods of food production under soil-less culture have shown some promising results all over the World. The course is giving the Knowledge about the soil less cultivation research work as well as self-employment generation



## Objectives

1. Provide knowledge of advanced “Hydroponic” and Polyhouse automation technologies.
2. Impart knowledge about the global “Hydroponic” scenario and technics in soil-less farming.
3. Generate understanding about “Protected Cultivation” and quality standards.
4. Exposure to the participants for design, installation, crop production and management of “Hydroponic” unit.
5. Encourage the participants for establishing Hydroponic unit and develop confidence to become a successful entrepreneur.

## Contents

- ◉ Basics of hydroponics
- ◉ Types of Hydroponics
- ◉ Components of Hydroponics
- ◉ Crop production in Hydroponics
- ◉ Crop nutrition in Hydroponics
- ◉ Entrepreneurial options in Hydroponics growing
- ◉ What is protected Cultivation
- ◉ Types of Protected Cultivation structures
- ◉ Cladding materials in protected cultivation
- ◉ Government Schemes for protected cultivation

## EXPERTS SCHEDULE

Sr. No.	Date	Time	Topic	Speaker
1	04.10.2021	11.00 AM to 01.00 PM	Basics of hydroponics	Dr. Praveen Singh
		03.00 PM to 05.00 PM	Exercise on scenario of Hydroponics in India and global	
2	05.10.2021	11.00 AM to 01.00 PM	Components of Hydroponics	Dr. Praveen Singh
		03.00 PM to 05.00 PM	Exercise on Designing hobby hydroponic Unit	
3	06.10.2021	11.00 AM to 01.00 PM	Types of Hydroponics	Dr. Praveen Singh
		03.00 PM to 05.00 PM	Installing a hydroponic unit in the group	
4	07.10.2021	11.00 AM to 01.00 PM	Crop production in Hydroponics	Dr. Praveen Singh
		03.00 PM to 05.00 PM	Exercise – Designing crop production protocol	
5	08.10.2021	11.00 AM to 01.00 PM	Crop nutrition in Hydroponics	Dr. Praveen Singh
		03.00 PM to 05.00 PM	Designing fertilizer recipe for hydroponics crop	
6	11.10.2021	11.00 AM to 01.00 PM	Entrepreneurial options in Hydroponics growing	Dr. Praveen Singh
		03.00 PM to 05.00 PM	Exercise – Develop a business plan for hydroponic	
7	12.10.2021	11.00 AM to 01.00 PM	What is protected Cultivation	Mohd. Moazzam
		03.00 PM to 05.00 PM	Exercise; scope of protected cultivation in India	
8	13.10.2021	11.00 AM to 01.00 PM	Types of Protected Cultivation structures	Mohd. Moazzam
		03.00 PM to 05.00 PM	Exercise – Designing a protected cultivation structure	
9	14.10.2021	11.00 AM to 01.00 PM	Cladding materials in protected cultivation	Mohd. Moazzam
		03.00 PM to 05.00 PM	Exercise Use of cladding material as per crop and area	
10	16.10.2021	11.00 AM to 01.00 PM	Government Schemes for protected cultivation	Mohd. Moazzam
		03.00 PM to 05.00 PM	Exercise: List of various government schemes to promote protected cultivation	

## Target Audience

PG, Ph.D. Students, Faculties, Scientists of Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani and other Universities, in the area of Agronomy, Horticulture, Extension education, Economics and Agriculture Engineering. etc. Departments are eligible to register and are requested to take advantage of the online training course for self development.

## About Selection

- 1) The Whatsapp Group of the selected candidates will be formed at least one day before the start of the E-course and the communications regarding the E-course will be posted in the group.
- 2) Alternatively Candidates can keep accessing the CAAST-VNMKV website (<https://nahep.vnmkv.org.in>) regarding the selection, preferable on the day before the start of the seminar.
- 3) Lead lectures through online platform will be conducted along with online interaction. The link, ID and password for joining the online session will be communicated through Whatsapp group of the selected candidates 30 minutes before the start of the session.
- 4) Certificates will be issued to those participants only who will complete all online session and assignments.

## Training Outcomes

### Methodology for conduct of Training

**Pre and Post Evaluation:** Pre and Post certificate course evaluation will be carried out to evaluate the impact of the certificate course

#### Conduct of the Certificate Course:

**Project Report:** The candidates are required to complete the case study based project report and submit it online.

**Evaluation :** There will be evaluation of the candidates at the end of each week, and a final evaluation towards the end of the course. The evaluation will be in the form of MCQs, descriptive questions, and power point presentations, as the case may be.

**Feedback :** Candidates need to provide the feedback towards the end of certificate course.

## Registration

**Duration of E-course:**  
'04<sup>th</sup> to 16<sup>th</sup> October, 2021 (Two Weeks)

**Registration Fee (Non Refundable):**

**Course Fee:** Rs. 500/- for all students, faculty & Researchers

**International Participant 30 USD**  
**Account Details :**

**Account Name :** Comptroller, Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani

**Account Number :** 38639565001

**Bank Branch :** State Bank of India,  
**Branch :** MKV, Parbhani (MS) India.

**IFSC Code :** SBIN0020317

**MICR Code :** 431002203

### SCAN & PAY



#### Important Dates:

Interested participants can register on below mentioned link, for the online registration is, <https://forms.gle/AsqLHbc6DwL23x9H7>

or use QR code provided here.



**Last date of registration :** October 02, 2021

**Confirmation of admission to the candidates:**  
October 03, 2021

**Course Language:** English



## Two Weeks Online E-course

on

### “ADVANCE HYDROPONICS & POLYHOUSE AUTOMATION”

04<sup>th</sup> to 16<sup>th</sup> October, 2021 Time : 11.00 AM to 01.00 PM Hrs

#### Patrons



**Dr. A. S. Dhawan**  
Vice-Chancellor  
VNMKV, Parbhani



**Dr. R. C. Agrawal**  
National Director  
NAHEP, ICAR, New Delhi

#### Chief Convenors



**Dr. D. N. Gokhale**  
DI & Dean F/A  
VNMKV, Parbhani



**Dr. Prabhat Kumar**  
National Co-ordinator  
NAHEP, ICAR, New Delhi

#### Convenor



**Dr. G.U. Shinde**  
Principal Investigator  
NAHEP-CAAST-DFSRDA  
VNMKV, Parbhani



**Dr. R.P. Kadam**  
Co-Principal Investigator  
NAHEP-CAAST-DFSRDA  
VNMKV, Parbhani

#### Organizing Secretary



**Er. Khemchand Kapgate**  
RA, NAHEP,  
VNMKV, Parbhani

#### Joint Organizing Secretary



**Dr. H. N. Rokade**  
SRF (SSPN), NAHEP,  
VNMKV, Parbhani

#### Co-Organizing Secretary

**Mr. Raheem Khan**  
JRF (SSPN),  
NAHEP, VNMKV, Parbhani

**Dr. Shivraj Shinde**  
JRF (CDKS),  
NAHEP, VNMKV, Parbhani

#### Training Coordinator

**Er. Tanzeemkhan Pathan**  
JE (Mech.), NAHEP,  
VNMKV, Parbhani

**Contact No. :- 9881775095 / 8999064920 / 9371373399**