



National Agriculture Higher Education Project
 Centre of Excellence : Digital Farming Solutions for Enhancing Productivity by
 Robots, Drones and AGV's (DFSRDA)

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

Four Months Institutional Internship/Training Programme of UG/PG/Ph.D. Students

21th Jan 2022 to 21th May 2022



Vaswantrao Naik Marathwada Krishi Vidyapeeth, Parbhani (MS) INDIA

About University

Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani established in 1972 on Land Grant pattern at Parbhani to fulfill the regional aspirations of fields, undertakes research and facilitates technology transfer in Marathwada region of Maharashtra.

Vasantrao Naik Marathwada Krishi Vidyapeeth (VNMKV) Parbhani, is one of the prestigious agricultural universities in India. Since its inception, it has gained recognition as an universal national digital technology innovative organization in the term of education and research in agriculture. Applications in agriculture 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 Vasantrao 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 setups such as Mechatronics, CAD/CAM/CAE, 3D 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 Four Months Institutional Internship/Training Programme of UG/PG/Ph.D. Students

Training Background

The NAHEP-CAAST DFSRDA-VNMKV, Parbhani center is integrated by three interdisciplinary research divisions such as Agri-bots, Agri-Drones and Agri-AGV's based on four applicant portfolios and Instrumentation Cell:

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

The main aim of organizing this Four Months Institutional Internship/Training Programme of UG/PG/Ph.D Students to develop basic skill in the various applications of "Advance Digital Technologies" for enhancing productivity by Robots, Drones and AGV's.

This training will introduce the UG/PG/Ph.D students to the state of the art concepts and practices of Fundamentals and Working of Camera and Sensors; Fundamentals and working with 3D Scanner and 3D Printing Machine; Introduction to smart portable machines and its scope of applications; CAD/CAE /CAM/ Ansys; Construction and Working of Grafting Robot and Experimentation; Polyhouse Automation, Hydroponics; Food Processing Automation; Hydraulic and Pneumatic Lab, Mechatronic Lab, AGVs workshop.

Objectives

1. Strengthen the present UG/PG and Ph.D students in all disciplines by offering Four months Training course such as Robotics, Drones & AGVs.
2. Develop case studies/Projects of Agri-bots, Agri- drones, Agri-AGVs applications in agriculture.
3. To enhance VNMKV UG/PG/Ph.D students by academic and thematic Research.
4. Basic practices of CAD/CAM/CAE, Digital Applications in Agriculture.

Target Audience

Any UG/PG/Ph.D Students of Agricultural and allied sciences such as Agronomy, Horticulture, Agril. Meteorology, Agril. Entomology, Plant Pathology, Soil Science and Agril. Chemistry, Animal Husbandry and Dairy Science, Agril. Botany, Extension Education, Agril. Economics, Irrigation and Drainage Engg., Soil Water Conservation Engg., Process and Food Engg., Farm Power and Machinery Engg., Renewable Energy Sources, Food Technology, Community Science and Agril. Biotechnology of Vasanttrao Naik Marathwada Krishi Vidyapeeth, Parbhani and other Agricultural University and other Universities/SAUs/CAUs/CUs/ other UGC recognized Universities, Engineering colleges and Research Institutes are eligible to register and are requested to take advantage of the training.

Registration

Duration of Training :
21th Jan 2022 to 21th May, 2022

Registration Fee (Non Refundable):

Training Fee: 4000/- for VNMKV Students
8000/- for Other than VNMKV Students
studying in SAU's.

Account Details :

Account Name : Comptroller, Vasanttrao Naik
Marathwada Krishi Vidyapeeth

Account Number : 38639565001

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

IFSC Code : SBIN0020317

MICR Code : 431002203

or use QR code provided here.

SCAN & PAY



Important Dates :

UG/PG/Ph.D Students of Vasanttrao Naik Krishi Vidyapeeth, Parbhani & from other state Agriculture Universities (SAU's) are eligible to register and informed to take advantage of the Four Months Institutional Internship/Training Programme of UG/PG/Ph.D Students from the 21th Jan 2022 to 21th May 2022 by strictly following all guidelines of COVID-19.

Link for Registration : <http://shorturl.at/nrAW8>

QR code for Registration :



Date of Training Start : 21th January, 2022

Last date of registration : 31th January, 2022
up to 05 PM

The list of selected candidates will be displayed on the (<https://nahep.vnmkv.org.in/>) date : 31th January 2022

Important Note :

No accommodation will be provided for the participants.

Four Months Institutional Internship/Training Programme of UG/PG/Ph.D. Students

21th Jan 2022 to 21th May 2022

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

Organizing Secretary

Dr. B.S. Agarkar
Student Relation Liaison Officer
NAHEP-CAAST-DFSRDA, VNMKV

Er. D.V. Patil
Recruitment & Placement Officer
NAHEP-CAAST-DFSRDA, VNMKV



Four Months Institutional Internship/Training Programme of UG/PG/Ph.D Students

21th Jan 2022 to 21th May 2022

Training Schedule

Syllabus for Four Months Institutional Internship/Training Programme of
UG/PG/Ph.D. Students

Sr. No	Date	Topic Covered	Time	Faculty
Month: January-2022				
Division : NAHEP center				
01	21/01/2021	Introduction to NAHEP-CAAST-DFSRDA campus	11:00 am - 01:00 pm	Dr. Gopal U. Shinde
		Introduction to Agri-Bot division	03:00 pm- 05:00 pm	Er. Khemchand Kapgate
02	24/01/2022	Introduction to Agri- AGVs division	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
		Introduction to Agri- Drone division	03:00 pm- 05:00 pm	Er. Khemchand Kapgate
03	25/01/2022	Introduction to CDKS Portfolio	11:00 am - 01:00 pm	Dr. Aniket Waikar
		Introduction to SSPN Portfolio	03:00 pm- 05:00 pm	Dr. Hemant Rokade
04	31/01/2022	Introduction to SPM Portfolio	11:00 am - 01:00 pm	Er. Shivanand Shivpuje
		Introduction to IC Portfolio	03:00 pm- 05:00 pm	Er. Dhammajyoti Pimplekar
Month: February-2022				
Division : Agri-AGVs (Computer Aided Design)				
05	01/02/2022	Introduction to CAD	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
			03:00 pm - 05:00 pm	
06	02/02/2022	Basics of CAD software	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
			03:00 pm - 05:00 pm	
07	03/02/2022	2D & 3D Feature Based Part Sketch Sketch module Boolean operations	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
			03:00 pm - 05:00 pm	
08	04/02/2022	Creating part modeling	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
			03:00 pm - 05:00 pm	
09	07/02/2022	Conceptual Part Design, Assembly & Assembly constraints	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
			03:00 pm - 05:00 pm	
10	08/02/2022	Basics of Drafting, Engineering Drawing, GD & T	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
			03:00 pm - 05:00 pm	
Computer Aided Engineering				
11	09/02/2022	Introduction to CAE & Basic of SpaceClaim	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
			03:00 pm - 05:00 pm	
12	10/02/2022	Creating Geometry, Repair & Cleanup	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji
			03:00 pm - 05:00 pm	
13	11/02/2022	Introduction to Meshing, Types of	11:00 am - 01:00 pm	Er. Ravi Kumar Kalloji

		Meshing	03:00 pm - 05:00 pm	
14	14/02/2022	Meshing Controls, Solution & Result	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
15	15/02/2022	Static structural analysis	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
16	16/02/2022	Analysis of 1D,2D & 3D Geometry	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
17	17/02/2022	Report generate of Analysis	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
18	18/02/2022	Practice on structural analysis	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
19	21/02/2022	Introduction to CFD Analysis	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
20	22/02/2022	Geometry cleanup & repair for CFD	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
21	23/02/2022	Report generate of Analysis	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
22	24/02/2022	Thermal Analysis	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji
23	25/02/2022	Electrical & Electronics Analysis	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Pratap Jadhav Er. Apurva Deshmukh
24	28/02/2022	Overview of design and analysis of Agriculture machine Assignments submission	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Ravi Kumar Kalloji

Month: March-2022

Portfolio: Smart Portable Machinery (SPM)

25	02/03/2022	Introduction to smart portable Machinery	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
26	03/03/2022	Sources of different farm power available in India & use advanced machinery in agriculture	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
27	04/03/2022	Advanced Farm mechanization, scope & Its advantages	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
28	07/03/2022	Operation wise smart advanced agriculture machinery	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
29	08/03/2022	Study of components of tractor & IoT Based application	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
30	09/03/2022	Study of different advanced workshop machinery	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
31	10/03/2022	Developments of a small portable machinery in AGVs workshop	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
32	11/03/2022	Repair & Maintenance of agricultural machine	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
33	14/03/2022	Estimation of cost of farm machinery operations	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje

34	15/03/2022	Assignments submission	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Shivanand Shivpuje
Month : March-2022				
Portfolio : Food Processing Automation (FPA)				
35	16/03/2022	Introduction to Food Processing Automation	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Avinash Kakade
36	17/03/2022	Introduction to Unit Operations in Agricultural Process Engineering	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Shwata Solanke
37	18/03/2022	Cleaning and Grading	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Avinash Kakade
38	21/03/2022	Drying	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Shwata Solanke
39	22/03/2022	Storage	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Avinash Kakade
40	23/03/2022	Milling	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Shwata Solanke
41	24/03/2022	Material Handling and Transportation	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Avinash Kakade
42	25/03/2022	Elementary Food Engineering	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Shwata Solanke
43	28/03/2022	Introduction to Texture Analyzer	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Avinash Kakade
44	29/03/2022	Introduction to Colorimeter (Colour Flex EZ Colorimeter)	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Shwata Solanke
45	30/03/2022	Introduction to 3D Food Printing	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Avinash Kakade
46	31/03/2022	Introduction to Water activity meter (aW), Assignments submission	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Shwata Solanke
Month:April-2022				
Division : Agri-Bots				
Basics of additive manufacturing				
47	01/04/2022	Definition of Robots, Evolution of robots Laws of robots	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
48	04/04/2022	Types of robots, Selection of robots.	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
49	05/04/2022	Degrees of freedom, degrees of movements	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
50	06/03/2022	Robot configuration, Actuators, drives and sensors	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
51	07/03/2022	Fundamentals and working with 3D Scanner	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
52	08/03/2022	Fundamentals and working with 3D Scanner	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
53	11/04/2022	Fundamentals and working with 3D Scanner	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate

54	12/04/2022	Fundamentals and working with 3D Printing Machine	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
55	13/04/2022	Fundamentals and working with 3D Printing Machine	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
56	18/04/2022	Fundamentals and working with 3D Printing Machine	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
57	19/04/2022	Introduction to Construction of Jackal and Husky Robots	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
58	20/04/2022	Assignments submission	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
Month: April-2022				
Portfolio : Seed Seedling Processing Nursery Automaton (SSPN)				
59	21/04/2022	Introduction to Robotic Grafting	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Hemant Rokade Mr. Faruqui Abdul Bari
60	22/04/2022	Construction and Working of Grafting Robot and Experimentation	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Hemant Rokade Mr. Faruqui Abdul Bari
61	25/04/2022	Introduction, Construction, and Working of Refrigerated Van	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Hemant Rokade Mr. Faruqui Abdul Bari
62	26/04/2022	Introduction, Construction, and Working of Cold Storage Unit	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Hemant Rokade Mr. Faruqui Abdul Bari
63	27/04/2022	Basics of Polyhouse Automation	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Hemant Rokade Mr. Faruqui Abdul Bari
64	28/04/2022	Introduction to Hydroponics	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Hemant Rokade Mr. Faruqui Abdul Bari
65	29/04/2022	Assignments submission	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Hemant Rokade
Month: May-2022				
Division: Agri-Drone				
66	02/05/2022	Drone flight setup and mechanism	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
67	03/05/2022	Drone repair, safety and maintenance checklist	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
68	04/05/2022	Drone Pre Flight and Post Flight Checking	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
69	05/05/2022	Drone Flight Training & Assignments submission	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Khemchand Kapgate
Month: May-2022				
Portfolio : Climate-based Digital Knowledge Support (CDKS)				
70	06/05/2022	Fundamentals and Working of Camera and Sensors	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Aniket Waikar
71	09/05/2022	Water resources development and management	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Shivraj Shinde

72	10/05/2022	Fundamentals of Integrated Nutrient Management for crops	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Shivraj Shinde
73	11/05/2022	Field Trials and data collection	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Apurva Deshmukh
74	12/05/2022	Data Analysis and calculating vegetation indices	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Apurva Deshmukh Er. Vishwapratap Jadhav
75	13/05/2022	Basics of Remote sensing and GIS Assignments submission	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Dr. Aniket Waikar
Month: May-2022				
Portfolio : Instrumentation Cell (IC)				
76	17/05/2022	Introduction of Advanced Agril. Sensors	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Dhammajyoti Pimplekar
77	18/05/2022	Introduction to Pneumatic and Hydraulics equipments	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Vishwapratap Jadhav
78	19/05/2022	Basic of Mechatronics Assignments submission	11:00 am - 01:00 pm 03:00 pm - 05:00 pm	Er. Dhammajyoti Pimplekar