The implementation of the Project on "Establishment of the Centre of Excellence on Digital Technologies for Smart and Precision Agriculture" at Department of Agricultural Engineering, MPKV, Rahuri.

Implementation for the period 2023-24 to 2025-26

MAHATMA PHULE KRISHI VIDYAPEETH
RAHURI, DIST. AHMEDNAGAR (MAHARASHTRA)

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Univ. Reso. No. MTG-3(735)/ ᘐ₂₂ /of 2023   Date ᘐ₅/₀੪ /2023

Read : 1. Govt. of Maharashtra GR No. MPV 1422/L.No.253/ 7-A Date- 31-03-2023
2. Executive Council Reso. No. 6/339 date- 15/06/2023

The Department of Agriculture, Animal Husbandry and Fisheries, Government of Maharashtra has approved the project along with the grants of Rs. 476.00 lakhs vide referred at Sr. No.1 for implementation of project on "Establishment of the Centre of Excellence on Digital Technologies for Smart and Precision Agriculture" at Department of Agricultural Engineering, Mahatma Phule Krishi Vidyapeeth, Rahuri for the period of 2023-24 to 2025-26.

Accordingly, the proposal for implementation of project on "Establishment of the Centre of Excellence on Digital Technologies for Smart and Precision Agriculture" at Department of Agricultural Engineering, MPKV, Rahuri was placed before the Hon. Executive Council in its 339th meeting for approval and subsequently approved by the Hon. Executive Council, MPKV, Rahuri vide referred at Sr. No.2.

RESOLUTION

On approval accorded by the Department of Agriculture, Animal Husbandry and Fisheries, Govt. of Maharashtra vide GR referred at Sr. No. 1. The Project on "Establishment of the Centre of Excellence on Digital Technologies for Smart and Precision Agriculture" is implemented at Department of Agricultural Engineering, Mahatma Phule Krishi Vidyapeeth, Rahuri from 2023-24 to 2025-26 (3 years). The expenditure under this project will be made as per the schedule and heads given in the Detailed Project Proposal **(Annexure-A).**

The contractual staff required to implement this project will be recruited using the budgeted grants approved under the human resource head. The staff will be recruited purely on the contractual and temporary basis. The details of the educational qualification and desirable qualification of the contractual staff are given in **Annexure – B.**

Dr. S. D. Gorantiwar, Head, Department of Agril. Engineering, MPKV, Rahuri will work as Principal Investigator for this project. Dr. M. G. Shinde, Professor (SWCE), Department of Agril.

Engineering, Dr. A. A. Atre, Professor (SWCE), Deptt. of Agril. Engineering, Dr. S. A. Kadam, Associate Professor (IDE), Department of Agril. Engineering, Dr. S. M. Nalawade, Head, Deptt. of Farm Machinery and Power Engineering, Dr. ASCAET, MPKV, Rahuri, Dr. M. S. Mane, Head, IFD-IWM, PGI, MPKV, Rahuri, Dr. P. L. Kulwal, Professor of Botany, SLBC, MPKV, Rahuri, and Dr. S. H. Mane, Assistant Professor of Animal Husbandry and Dairy Science, ICRTC, Zonal Extension Center, College of Agriculture, Pune will work as Co-Principal Investigators. Technical and Administrative Control shall rest with Head, Department of Agril. Engineering, MPKV, Rahuri. Dr. M. G. Shinde, Professor (SWCE), Department of Agril. Engineering, MPKV, Rahuri will be Drawing and Disbursement Officer (DDO) of this project. Overall control of the project shall rest with the Director of Research, MPKV, Rahuri.

This resolution is issued in concurrence of the Comptroller vide his un-official reference No. Cr. 813-VC, dated:- 01/08 /2023.

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Sd/-
Registrar
MPKV, Rahuri
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F.W.Cs. for information and necessary action to
1) Under Secretary, Agriculture, Animal Husbandry, Dairy Development and Fisheries Department, Mantralay, Mumbai – 400 032.
2) The Director (Research), MCAER.132/B. Bhamburda, Bhosalenagar, Pune 411 007
3) The Director of Research, MPKV, Rahuri.
4) The Director of Extension Education, MPKV, Rahuri
5) The Dean, Faculty of Agriculture& Director of Instruction, MPKV, Rahuri
6) The Associate Dean (All), MPKV, Rahuri
7) The Associate Director of Research, MPKV, Rahuri
8) The Head Departments (All), MPKV, Rahuri
9) The Comptroller, MPKV, Rahuri
10) The Planning Officer, MPKV, Rahuri
11) The Deputy Registrar (Admn/ACD), MPKV, Rahuri
12) The Asstt. Comptroller (II/III/IV)/PAO, MPKV, Rahuri
13) The PA to Hon. Vice Chancellor, MPKV, Rahuri
14) Dr. S. D. Gorantiwar, Head, Department of Agril. Engineering, MPKV, Rahuri (Principal Investigator)
15) Dr. M. G. Shinde, Professor (SWCE), Department of Agril. Engineering, MPKV, Rahuri (Co-Principal Investigator)
16) Dr. A. A. Atre, Professor (SWCE), Deptt. of Agril. Engineering MPKV, Rahuri (Co- Principal Investigator)
17) Dr. S. A. Kadam, Associate Professor (IDE), Department of Agril. Engineering, MPKV, Rahuri (Co- Principal Investigator)
18) Dr. S. M. Nalawade, Head, Deptt. of Farm Machinery and Power Engineering, Dr. ASCAET, MPKV, Rahuri (Co- Principal Investigator)
19) Dr. M. S. Mane, Head, IFD-IWM, PGI, MPKV, Rahuri (Co- Principal Investigator)
20) Dr. P. L. Kulwal, Professor of Botany, SLBC, MPKV, Rahuri (Co- Principal Investigator)
21) Dr. S. H. Mane, Assistant Professor of Animal Husbandry and Dairy Science, ICRTC, Zonal Extension Center, College of Agriculture, Pune (Co-Principal Investigator)

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Annexure-A (Budget)

Sr. No.	Name of Laboratory	Years (Rs. in lakhs)		
		1	2	3
1.	**Robotics and Precision Machinery Labs**			
	(A) Equipments and Instruments	40.0	-	-
	(B) Recurring Contingencies; and consumables, spare parts, components and software development required for the development of the technology	5.0	30.0	25.0
	(C) Other Expenses	1.0	1.0	1.0
	(D) Human Resources	7.0	7.0	7.0
	Subtotal	**53.0**	**38.0**	**33.0**
2.	**Drone Lab**			
	(A) Equipments and Instruments	10.0	-	-
	(B) Recurring Contingencies; and consumables, spare parts, components and software development required for the development of the technology	10.0	30.0	20.0
	(C) Other Expenses	2.0	2.0	2.0
	(D) Human Resources	9.0	9.0	9.0
	Subtotal	**31.0**	**41.0**	**31.0**
3.	**IoT Lab**			
	(A) Equipments and Instruments	5.0	-	-
	(B) Recurring Contingencies; and consumables, spare parts, components and software development required for the development of the technology	5.0	25.0	15.0
	(C) Other Expenses	2.0	2.0	2.0
	(D) Human Resources	14.0	14.0	14.0
	Subtotal	**26.0**	**41.0**	**31.0**
4.	**RS & GIS Lab**			
	(A) Equipments and Instruments	-	10.0	-
	(B) Recurring Contingencies; and consumables, spare parts, components and software development required for the development of the technology	5.0	20.0	20.0
	(C) Other Expenses	2.0	2.0	2.0
	(E) Human Resources	7.0	7.0	7.0
	Subtotal	**14.0**	**39.0**	**29.0**
5.	**Climate Smart Digital Agriculture Village**			
	(A) Equipments and Instruments& Softwares	5.0	-	-
	(B) Recurring Contingencies; and consumables, spare parts, components and software development required for the development of the technology	2.0	20.0	15.0
	(C) Other Expenses	2.0	2.0	2.0
	(D) Human Resources	7.0	7.0	7.0
	Subtotal	**16.0**	**29.0**	**24.0**
	Total	**140.0**	**188.0**	**148**
	Grand total	**476.0**		

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Annexure- B

Educational qualifications and experience for contractual positions

(A) Research Associates

Sr. No.	Name of the Post	Discipline/Subject	No. of Posts	Qualifications
1.	Research Associate	Mechanical Engineering/ Robotics Engineering/ Mechatronics/ Farm Machinery and Power Engineering	01	*For Mechanical Engineering/ Robotics Engineering/ Mechatronics* **Essential:** Ph.D. degree in Mechanical Engineering/Robotics Engineering/ Mechatronics or equivalent OR Masters or M. Tech. (Mech. Engg.) degree in Mechanical Engineering/Robotics Engineering/ Mechatronics or equivalent having 1st division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** Knowledge and/or experience in Robotics, drones, design of agricultural implements and machineries, CAD, CAM, CAE, Simulation and software like SOLID WORKS/CATIA/CREO *For Farm Machinery and Power* **Essential:** Ph.D. degree in Farm Machinery and Power Engineering or equivalent OR Masters or M. Tech. (Agri. Engg.) degree in Farm Machinery and Power Engineering or equivalent having 1st division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** Knowledge/experience in design, development; and operation of precision farm machineries and implements, variable rate applicators, soil dynamics, soil and implement integrator, zero tillage, minimum tillage machineries, hands on experience on

				software like SOLID WORKS/CATIA/CREO
2.	Research Associate	Farm Machinery and Power Engineering/ Mechanical Engineering	01	**For Farm Machinery and Power Engineering** **Essential:** Ph.D. degree in Farm Machinery and Power Engineering or equivalent OR Masters or M. Tech. (Agri. Engg.) degree in Farm Machinery and Power Engineering or equivalent having 1st division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** Knowledge/experience in design, development; and operation of precision farm machineries and implements, variable rate applicators, soil dynamics, soil and implement integrator, zero tillage, minimum tillage machineries, hands on experience on software like SOLID WORKS/CATIA/CREO **For Mechanical Engineering** **Essential:** Ph.D. degree in Mechanical Engineering or equivalent OR Masters or M. Tech. (Mech. Engg.) degree in Mechanical Engineering or equivalent having 1st division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** Knowledge and/or experience in Robotics, drones, design of agricultural implements and machineries, CAD, CAM, CAE, Simulation and software like SOLID WORKS/CATIA/CREO
3.	Research Associate	Irrigation and Drainage Engineering	01	**Essential:** Ph.D. degree in Irrigation and Drainage Engineering /Water Recourse Development and Management /Water Resources Engineering/Irrigation Water Management Engineering or equivalent OR Masters or M. Tech. (Agri. Engg) degree

				in Irrigation and Drainage Engineering /Water Recourse Development and Management/Water Resources Engineering /Irrigation Water Management Engineering or equivalent having 1st Division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** • Knowledge and/or experience in pressurized irrigation systems such as sprinkler, drip and its automation, moisture sensors, weather based irrigation scheduling system, IoT for water resources. • Knowledge and/or experience of developing/working with simulation models, decision support system; open source or commercially available software such as DSSAT, MIKE SHE/11, MODFLOW
4.	Research Associate	Electronics and Telecommunication /Computer Engineering/IT/ Instrumentation	01	**Essential:** Ph.D. degree in Electronics and Telecommunication/ Computer Engineering/IT/Instrumentation or equivalent OR Masters or M. Tech./M.E. / Electronics and Telecommunication/ Computer Engineering/IT/Instrumentation or equivalent 1st division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** • Experience and/or knowledge in web based application design and development (languages such as HTML5, CSS, PHP, JAVASRIPT), knowledge and experience of languages such as C++, Fortran visual OR/AND • Experience and/or knowledge in mobile application design and

				development (iOS, android) • Experience and/or knowledge in IoT platforms, VLSI and embedded systems, different sensors and communication between sensors and software. Development and application of computer hardware, software, electronic instrumentation control and communication systems in agriculture, water and climate sectors.
5.	Research Associate	Remote Sensing and GIS/ Geo-Informatics/ Soil and Water Conservation Engineering	01	**For Remote Sensing and GIS** **Essential:** Ph.D. degree in Remote Sensing and GIS Applications or equivalent OR Masters or M. Tech./M.E. degree in Remote Sensing and GIS Applications or equivalent having 1st division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** Experience and/or knowledge in application of RS/GIS techniques in agriculture, water resources, hydrology, weather, climate change **For Geo-Informatics** **Essential:** Ph.D. degree in Geo-informatics/ Geo-Information Science or equivalent OR Masters or M.Sc./M. Tech./M.E. degree in Geo-informatics/ Geo-Information Science or equivalent having 1st division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** Experience and/or knowledge technologies required for analyzing, distributing and visualizing geo-spatial data, image analysis, soft computing and artificial intelligence, meta data analysis in context of natural resources management.

				For Soil and Water Conservation Engineering **Essential:** Ph.D. degree in Soil and Water Conservation Engineering/ Soil and Water Engineering or equivalent OR Masters or M. Tech. (Agri. Engg.) degree in Soil and Water Conservation Engineering/ Soil and Water Engineering or equivalent having 1st Division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** Knowledge and/or experience in river basin modeling such as AVSWAT, Water Erosion Prediction Project (WEPP), HEC-HMS, HEC-RAS models, erosion modelling.
6.	Research Associate	Extension Education and Communication	01	**Essential:** Ph.D. degree in Agril. Extension Education and Communication OR M. Sc. (Agri.) degree in Agril. Extension Education and Communication or equivalent having 1st division or 60% marks or equivalent overall grade point average, with at least two years research experience, as evidenced from Fellowship/ Associate ship/ Training/other engagements. **Desirable:** Experience and/or knowledge of social sciences in the weather–climate enterprise, institutional aspects of agriculture systems, capacity building, report writing.

Note: For the posts stated above, the teaching or teaching assistantship/training experience is desirable.

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(B) Skilled Worker (Lab/Field Assistant)

Name of the Post	Discipline/Subject	No. of Posts	Qualifications
Skilled Worker (Lab/Field Assistant)	Mechanic (Instrument Aircraft)	01	**Essential:** 1. ITI in Mechanic Instrument Aircraft 2. At least two years of experience **Desirable:** Experience in related public sector/private industry/ authorized dealers

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