



**KERALA AGRICULTURAL UNIVERSITY**  
FARMING SYSTEMS RESEARCH STATION  
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FS (3) 1663/2022

Dated: 21.12.2022

**QUOTATION NOTICE**

Sealed and competitive quotations are invited from interested persons/firms for the supply of the following lab equipments required for the project entitled SHM Project – Establishment of Leaf/Tissue Analysis Lab at FSRS.

**1. Analytical Balance 4 digit**

Specification as listed below

Sl No	Requirement	Specification
1	Capacity	220gm Readability :0.0001g(0.1mg)
2	Repeatability	0.0002g or better
3	Linearity	±0.0003g or better
4	Pan Diameter	90mm or better
5	Tare range	100% full
6	Response Time	3sec or better
7	Built	High Grade Chemical Resistant metal with EMFC ( electro magnetic force compensation)
8	Doors	Draft shield with 3 opening door-left, right and top smooth glass
9	Software	Weighing cell and advanced microcontroller base, unique excellent software with updated feature.
10	automatic temperature control	Should have fully automatic temperature control motorized internal adjustment
7	Operating temp:	+5 to 35°C
8	Weighing Unit	Gm,mg,ct and Multi Units

## 2. Lap top with printer

Specification as listed below

Sl No	Requirement	Specification
1	Laptop	Intel Core I3 ,11th Gen, 8GB RAM, 512 Gb SSD,15.6" display ,
2	Operating system	Windows 11,MS office
3	Laptop Warranty	3 years
4	Printer	Multifunction Printer with , Scan, Copy 18paper per minutes
5.	Printer Warranty	1 years

## 3. Digital camera

Specification as listed below

Sl No	Requirement	Specification
1	Pixel	24.1 megapixel APS-C CMOS SENSOR
2	Image processor, AF point	Digic 4+, 9 Point AF with 1 centre Cross
3	Copnnectivity	WiFi/ NFC
4	Shutter speed	30-1/4000
5	Movie format	MOV
6	Frame rate ( FPS)	3.0
7	Options	Full HD/ 30P video recording
8.	Additional support and offer	Protective bag

## 4. Kjeldhal Digestion System for TKN Analyser

Sl No	Requirement	Specification
1	Capacity	Six Place 250 ml capacity PC Compatible Block Digestion System with all essential accessories
2	Screen Display	TFT Graphic Touch Screen Display with unique wireless mouse to operate at a distance of 1-2 mtrs without connecting to PC. Inbuilt Data logger with real time date & clock with memory stick for data storage with display of live data logging process with graph
3	Port	Should have 2 Ports in the motherboard one for PC connectivity another for direct connection to Remote Mouse/ Memory stick for data storage

4	Autosequencing time/temperature	Integrated autosequencing time/temperature domain of > 50 programs and >10 sequencing steps
5	Temperature Controller	Temperature Controller should be isolated separately in a control tower to protect electronics from digestion heat zone and acid reaction zone, with separate access door for main unit & electronics control tower unit.
6	Additional protection	Inbuilt add-on safety standby PID Controller for Heater & block protection apart from main microprocessor controller.
7	Software enables multi user login	Inbuilt Software enables multi user login feature in touch screen display with password protection for different user level for Administrator, supervisor and End user
8	Temperature Control Range	Room temperature to 450 ° C, Temperature Accuracy : ± 0.5 ° C
9	Temperature Control Range	Room temperature to 450 ° C, Temperature Accuracy : ± 0.5 ° C
10	Display property	Inbuilt software performs Live graphical representation of time /temperature gradient on touch screen display
11	Remote control module	Remote control module for wireless data monitoring, control and transfer to PC at a distance of 5-10 feet with remote transmitter and remote receiver dongle.
12	Accessories	Digestion Tubes, SS Insert Rack, Exhaust Manifold,
13	Safety measure	Suction Assembly wall mounted on rear side of unit for safe removal of acid fumes & easy access to drain area
14	Demonstration	Bidders must show physical demonstration of the quoted system during technical evaluation of the bids.

## 5. Fume Extraction System

Sl No	Requirement	Specification
1	<b>Scrubber.</b>	<b>Four stage acid neutralization scrubber</b>
2	Stage of scrubbing	First stage: Condensation with water condensor, Second Stage: Neutralization in Alkali, Third Stage: Neutralization in Water, Fourth Stage: Dissolution of air free of acid fumes in raw tank water
3	Submergible pump	Non Corrosive submergible pump for condensor water recirculation
4	Tank	Stainless Steel Tank of capacity 8 litres, Containers for Alkali and Water

5	Electrical Requirement:	230v/50Hz Mains.
6	Proven track record	The company should be reputed with at least 100 users in Kerala with proof of user list.

### 6. Hot plate

Sl no	Requirement	Specification
1.	Body	Heavy MS Body powder coated with SS Top
2.	Enegy	Energy Regulator
3.	Switch	Rotary Switch supplied complete with cord and <b>plug</b>
4.	Voltage	220/230V AC
5.	Temperature	250° C-300° C
6.	Size	250mmx400mm
7	Power	2000 Watts

### 7. Hot Air Oven

Sl no	Requirement	Specification
1	Body	Sturdy double walled units Inner chamber made of S.S. and outer made of Mild Steel with Powder coating.
2	Insulation	Gap between the walls filled with glass wool insulation
3	Thermal control	Thermostat
4	Temperature	50°C to 200°C
5	Accuracy	+/-1°C
6	Air Ventilations	Air Ventilations are placed on top of both sides , With three side tubular Heating Element
7	Inner Chamber Size	450x450x600mm
8	No. of Trays	3
9	power	1000 Watts
10	Volume	125 L
11	Microprocessor	With Microprocessor based Digital Temperature Controller & Air Circulation Fan
12	Timer	Digital Timer

**8. Autoclave (Vertical) with Digital Temperature controller cum indicator and Auto Pressure cut off System**

Sl no	Requirement	Specification
1	Body	Double wall construction with inner S.S. sheets are argon welded & outer chamber made of high quality S.S. 304 powder coated.
2	Electrically heated by	I.S.I. quality immersion heaters
3	Working pressure	15 PSI
4	Other facilities	Hydraulically dye pressed Lid from S.S. Plate with, easy pedal lifting device, having pressure gauge, two Nos. safety valve, quick release coupling and handle with heater cover stand.
5	Water level arrangement	cut off buzzer system and S.S. perforated basket supplied along with unit
6	Inner & Outer S.S. size	300 x 500 mm
7	Power	2.0 K W
8	Volume	35 Ltr
9	Temperature control and pressure cut off	with Digital Temperature controller cum indicator and Auto Pressure cut off system
10	Optional features	Digital Timer Auto Vacuum Breaker, Auto Purging & Exhaust (Solenoid Valve) Water level glass indicator

**9. Laminar Air Flow cabinet (Horizontal)**

Sl no	Requirement	Specification
1	Body	Provide double filtered clean air through Pre Filters & HEPA Filters ("CLASS 100") basically constructed MS Powder Coated and the air flow is coming in horizontal way
2	Power	1/5 HP motor
3	Rotation	1440 Rpm
4	Work table	made of S.S and side panels are made of U.V stabilised polycarbonate sheet framed in anodized Aluminium frame.
5	Built	Static Inclined Pressure Manometer and cork for gas, U.V. Lamp, Fluorescent light are also provided.
6	velocity	90 ft/min +/-20%.
7	Noise level	Less than 65 db at work area
8	Vibration	0.00005 cm
9	Size of HEPA Filter	2'x2'
10	Outer dimension	28''x 40''x 60.5''

The quotations superscribing "Quotation for the supply of lab equipments" should reach the undersigned on or before **04.01.2023** at **2.30 P.M.** Quote the rate per items. The quotations will be opened at **3.00 P.M** on the same day and the lowest rate will be accepted. The rate quoted should be inclusive of all taxes.

The undersigned reserves all right to accept or reject the quotations without assigning any reason. All the rules regarding Government quotations are applicable to this also.



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To: The Firms/Notice Board  
CC to : Dr.Renjan B, Assistant Professor/SF