



KERALA AGRICULTURAL UNIVERSITY
Department of Agricultural Engineering
College of Horticulture, Vellanikkara, Thrissur – 680 656.

Phone: 0487-2438331

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TENDER NOTICE No. AG.ENGG/03/2018 dated 12.03.2018

Sealed tenders are invited for the supply of different Food Processing machineries and Analytical Equipment for Agricultural Engineering Laboratory whose specifications are given as Annexure.

The tender documents and conditions

1. The tender form may be downloaded from the following web link in the Internet:

<http://www.kau.in/tenders>.

The cost of tender form is rupees 0.20 % of PAC (rounded to nearest 100/- minimum Rs. 400/-) + 12% GST. A Demand Draft for the amount drawn in favour of **The Professor and Head, Dept. of Agricultural Engineering, College of Horticulture, Vellanikkara, Thrissur 680 656** payable at **SBI KAU Main Campus, Vellanikkara (Code-70670)** should be enclosed along with the tender submitted.

2. Earnest Money Deposit (EMD)

EMD @ 1% of the cost of equipment offered may be remitted by a separate Demand Draft drawn as detailed above.

3. Agreement on Kerala Stamp Paper for Rs. 200.00

Form of agreement can be downloaded from the website <http://www.kau.in/tenders> under the Related Documents section.

4. The offer for the item should indicate separately the basic unit, accessories and optional and its cost. Taxes, customs and excise duty, packing, forwarding, insurance and any other cost for its installation, if any should also be included.

5. The sealed cover containing the tender documents should be super scribed **“Tender for supply of Food Processing machineries and Analytical Equipment:(Name of machine)”** and sent to **The Professor and Head, Dept. of Agricultural Engineering, College of Horticulture, Vellanikkara, Thrissur, Kerala - 680 656.**

6. Tenders received late or incomplete in any respect will be summarily rejected without notice and the decision of the undersigned on such matters will be final.
7. Successful tenderers will have to execute an agreement and remit security deposit @ 5% of the value of the articles ordered, less the amount of EMD, drawn as DD or fixed deposit receipt.
8. The items are to be supplied at the Dept. of Agricultural Engineering, College of Horticulture, Vellanikkara, Thrissur, Kerala - 680 656 as per indent.
9. The supplier should give the details of the nearest service center and response time.
10. Details of warranty, after sale service offered on expiry of normal warranty period, available should be mentioned.
11. The undersigned reserves the authority to accept or reject any or all the tenders without assigning any reason.
12. The decision of the undersigned in finalizing the tenders shall be final and binding.
13. Leaflets/ brochures/ catalogues of the equipment describing its features, applications, specifications etc. should be provided along with tender. A drawing of the table assembly should be provided along with tender
14. Tenders will be received up to 10.00 AM on 26.03.2018
15. Tenders will be opened at 11AM on 26.03.2018 in the presence of the tenderers present at that time.
16. The items should be supplied and bills submitted before 28.03.2018
17. All conditions of Kerala government tenders are applicable in this case also. Further information can be had from the web site <http://www.kau.in/tenders> or from the office of **The Professor and Head, Dept. of Agricultural Engineering, College of Horticulture, Vellanikkara, Thrissur, Kerala - 680 656.**

ANNEXURE

Sl. No.	Items	Specifications	Qty
1.	Water activity meter	Water Activity Range: 0.010 to 1.000 a _w Water Activity Accuracy: Min. ± 0.003 Water Activity Resolution: More than 0.001 a _w Read Time : ≤ 5 min Sample Temperature Range: 4 to 50°C Sample Temperature Accuracy: ±0.2°C Sample Dish Capacity: 15ml full Operating Environment: 4 to 50°C; 0 to 90% Humidity non- condensing Data Communications: USB Provided with sample dishes Warranty: One year	1No
2.	UV Spectrometer	Stand alone operating UV-VIS Spectrophotometer Double Beam type Spectral bandwidth:1nm Microprocessor: Large LCD display and dedicated soft keypad, for operation on 220V / 50Hz. Should have high energy throughput and high quality monochromatic light Dual source (D2 lamp and Tungsten Halogen) and dual sample compartment for sample cell and reference cell. Measuring range: 190 nm to 1,100 nm Wavelength setting and display : upto0.1nm Wavelength accuracy for D ₂ spectral line: ± 0.1nm Wavelength reproducibility :± 0.1nm High Resolution. Variable wavelength scanning speed: 2,000 to 3 nm/min or better Wide Photometric range : -4 to +4 Abs and 0 to 400 %T Photometric Accuracy : ± 0.002 Abs at 0.5 Abs Photometric Repeatability : <±0.001 Abs at 0.5 Abs Photometric noise : <0.00005 Abs Automatic change over Source from UV to Visible. Silicon Photodiode detector Multiple USB ports for high speed PC and printer connectivity, data storage and transfer through USB pen drive Built in validation program, diagnostic and security functions Operational modes: 1) Photometric; 2) Spectrum; 3) Quantitation 4) Time Scan 5) Multi-Component Analysis Mode 6) Kinetics 7) DNA and Protein Quantitation Windows based Spectroscopy software Multitasking operations like simultaneous measurement, data processing, customizable measurement screen layout , Comparison of multiple spectra, spectrum enlargement,shrinking, auto scale,Normalization, Point Pick, peak/valley detection, area calculation, Simultaneous display of standard table, unknown table and calibration curves	1No

		Display of Pass/Fail indications based on measurement results Quartz cells: Pair of 10mm	
3.	Viscometer	Viscosity range : Min. 1+ to Max. 3M Speed: 0.3-100RPM No. of increments :18 Accuracy :≤1.0% of range Repeatability:≤1.0% of range Spindles: 6 Spindle Guard Leg& Lab Stand	1No
4.	Refrigerated centrifuge	Max capacity : 4x150ml Max speed: 15,000- 18,000 RPM Swinging bucket, fixed angle and microplate rotors are required Temperature range :-10°C to 40°C Time range : continuous operation Required auto lock features Fixed angle rotor 24×2ml capacity with 17,850 RPM and 30,000 and aboveG force	1No
5.	Head space gas analyzer	Sample Volume: Min.5ml Sample time: ≤10sec. Measuring range : 0-100% Resolution : ≤ 0.1% oxygen and carbon dioxide or better Sensor accuracy: O ₂ better than ±0.1% or CO ₂ ±2% Heating time : Less than or equal to 5sec Power supply: Battery powered, recharge time max 5 h, Working temperature: 0-40°C Should have Easy to read Color touch screen With Gas Flow Alaram Warranty and service: 1 Year	1No.
6.	Kjeldhalprotein analysis System	Digestion system Should have manual electronic temperature controller &drip hole for any leakage Requirements: IR Digestion block with IR heating elements,6 No. of insert rack with heat shield, Two-tier console Modes,Digestion mode, Cooling down mode & Standby mode, Complete exhaust system, Isoversinic tubing, drip tray and water Jet Should have the versatility to use 100 to 800 ml tubes Should have a multifunctional, programmable heater &interface for up gradable PC Control Water recirculating system for acid fume collection unit will be supplied Spare Digestion tubes: 12nos. Distillation System: Chemical resistant housing Display:touchscreen LCD Unlimited programming sequence consisting of auto addition of steam, alkali, reaction and distillation time with variable steam power Requirements: Calibration of dosing pumps, statistical data-total running period, run time of pumps, number of distillation All steps of the analysis and programming as well as	1 No.

		<p>acoustical error messages will be displayed. Safety features of tube sensor, door sensor, excess temperature and pressure. Should have USB and LAN facility for communication Detection limit: 0.1mg Distillation time: 2-4min/sample Kjeldatherm tubes and kjeldhal flask can be used(250ml,500ml & 750ml)</p>	
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PROFESSOR & HEAD