KINGDOM OF CAMBODIA NATION RELIGION KING





Institute of Technology of Cambodia

Training a new generation of entrepreneurs in sustainable agriculture and food engineering (FoodSTEM)

REF: 610052-EPP-1-2019-1-KH-EPPKA2-CBHE-JP

Date: 28th of December, 2020

To: All Eligible Bidders

Subject: Invitation Quotation to Supply Food Analysis equipment (Food Safety

Lab)

For the Training a new generation of entrepreneurs in sustainable

agriculture and food engineering project (FoodSTEM)

You are kindly invited to provide us with your sealed quotation for the supply of **Food Analysis equipment (Food Safety Lab)**.

Project's requirements are listed below.

Item	Specification	Quantity	Statement of Compliance : Bidders must state here either "Comply" or "Not Comply"
	Lot 1 (ITC)		
1	Binocular Microscope LED	3 set	
	Power supply: 220-240V, 50-60 Hz		
	Observation mode: Brightfield		
	Head: Binocular, 30° inclined and 360° rotating.		

	Interpupillary distance 48-75 mm.		
	Dioptric adjustment: On the left eyepiece tube		
	Eyepieces: WF10x/20 mm, high eye-point and secured by screw.		
	Nosepiece: Quadruple revolving nosepiece, rotation on ball bearings.		
	Objectives: N-PLAN 4x/0.10; N-PLAN 10x/0.25; N-PLAN40x/ 0.65; N-PLAN 100x/1.25 (Oil/Water) (All with anti-fungus treatment)		
	Specimen stage: Double layer rackless mechanical sliding stage, 150x139 mm, 75x33 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.		
	Focusing: Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen. Adjustable tension of coarse focusing knob.		
	Condenser: Abbe N.A. 1.25, with objective-coded iris diaphragm, focusable and centerable.		
	Illumination (Fixed Koehler type): X-LED3 with white 3.6 W LED (6,300 K) and light intensity control. Multi-plug 100-240Vac/6Vdc external power supply.		
	Product Dimensions (Height x Width x Depth) (mm): aprox. 370x235x320		
	Product Weight: 6.5 Kg		
	Accessories Included: Dust cover, Immersion oil (10ml), Tension adjustment tool and User Manual.		
	Warranty and Maintenance: At least 1 year on parts and 2 years on service		
2	Spectrophotometer	1 set	
	Wavelength range: 190.0 to 1100.0 nm;		
	Spectral bandwidth: 5 nm; Wavelength display: 0.1 nm increments;		
	Wavelength accuracy: ±1.0 nm; Wavelength repeatability: ±0.3 nm; Wavelength slew rate: Approx. 6,000 nm/min;		
	Wavelength scanning speed: Approx. 9 nm/min to 1,600 nm/min;		
	Stray light: 0.05 % or less (220.0 nm Nal, 340.0 nm NaNO2);		
	Photometric system: Monitor double beam optics;		
	Photometric range Absorbance: -0.3 to 3.0 Abs Transmittance: 0.0 % to 200 %;		
	Photometric accuracy: ±0.005 Abs at 1.0 Abs; Photometric repeatability: ±0.002 Abs at 1.0 Abs;		

	Baseline stability: ±0.001 Abs/h or less (700 nm, two hours after the power is turned ON);		
	Baseline correction: Automatic correction via computer memory;		
	Light source: 20 W halogen lamp (2,000 hour operating life) Deuterium lamp (socket type) Built-in light source auto position adjustment; Monochromator: Uses an aberration correcting concave holographic grating;		
	Detector: Silicon photodiode;		
	Sample compartment: Internal dimensions (WxDxH) (mm): 110.0 × 230.0 × 105.0 (Depth of one part is 155.0 mm.)		
	Attachment method: two fastening screws; Display: 6-inch LCD (320×240 pixels) With LED illumination With contrast adjustment function; Output Device: USB memory (optional) Data files saved in CSV format or UV-1280 dedicated format;		
	Power supply: 220V- 240 V, 50/60 Hz, 140 VA; Size (WxDxH) (mm): 416 × 379 × 274		
	Warranty and Maintenance: At least 1 year on parts and 2 years on service		
3	Vortex	1 set	
	Speed: up to 3000 rpm;		
	Speed type: variable		
	Speed control: electronic		
	Orbit diameter: 4.5 mm		
	Construction material: zinc alloy and technopolymer		
	Dimension (WxHxD) (mm): 150x130x 165		
	Power supply: 220V-240V; 15 W		
	Weight: aprox. 2.7Kg		
	Operation Mode: Touch, Continuous;		
	Warranty and Maintenance: At least 1 year on parts and 2 years on service		
4	Refrigerator	1 set	
	Capacity: 1500 L±5%		
	Temperature Range: 2~8°C		
	Refrigerant: R134a, CFC free		
	Refrigeration System: International famous compressor and Germany EBM fan motor		
	Controller: Microprocessor Control with LCD Display		

Alarms: High & low temperature alarm, Door open alarm, Sensor failure alarm External Size (mm): 748x1800x1965 Optional Accessories: Remote alarm system, Chart recorder Power Supply: 220V,50/ 60HZ, 830W Warranty and Maintenance: At least 1 year on parts and 2 years on service 5 Micropipette 4 Micropipette: 0.5-10µl Micropipette 20-200µl Micropipette 2-20µl Micropipette 100-1000 µl (1 ml) Feature: Highly resistant to heat, acid and alkalies, mildew, bleaches aging, sunlight and abrasion. Volume adjustment: Only few turn to reach from maximum to minimum volume. Each micropipette should be supplied with factory calibration certificate. Tips should be optimized wetting properties, high transparency, and highest accuracy. 6 Biobase Vertical Laminar Flow Clean Bench with Double Sides External Size (W*D*H) (mm) 1040*660*1770 Internal Size (W*D*H) (mm): aprox. 940*560*545 Work Surface Height: aprox. 750mm Display LED Display
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Display LED Display
Airflow Velocity Average of 0.3~0.5m/s
Material: Main Body: Cold-rolled steel with anti- bacteria powder coating
Work Table: 304 stainless steel
Pre-filter Polyester fiber, washable
HEPA Filter: 99.999% efficiency at 0.3µm
Noise <60dB
Front Window Manual, 5mm toughened glass, anti-UV
Max Opening 350mm 350mm
Standard Accessory Fluorescent lamp, UV lamp*2, Base stand
UV Lamp: 18W*1 30W*1
Fluorescent Lamp 21W*1 28W*1

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	Caster Universal caster with leveling feet		
	Power Supply: 220V-240, 50/60 Hz; 350-600W		
	Warranty and Maintenance: At least 1 year on parts and 2 years on service		
Lot	2 (RUA)		
1	Autoclave	1 set	
	Capacity: 60 L±5%		
	Temperature Range: Room Temp +5 °C to 132 °C,		
	Temperature accuracy: ± 0.5 °C at 121°C		
	Pressure & Gauge: 1.2 kgf/cm² at 121 °C/2.0 kgf/cm² at 132°C, 0-3kgf/cm²		
	Sterilization mode: Solid- or Liquid-mode (Jog-Dial with Push Button)		
	Power supply: 2 KW, 220-240V; 50-60 Hz; 2Kw		
	Timer & Alarm: 60 min, Error status & Time-end		
	Basket Dimension (mm): ø320 x h240		
	Gross Weight (kg): aprox. 120 Kg		
	Controller : Digital Fuzzy control System (Fully Automatic)		
	Door & Closing System: Lever-type Sliding Door/Safety electronic Door Closing System		
	Safety Circuit: Over-Temp/-Presure/-Current protection, sensor error detection		
	Printer: Thermal type printer, record paper roll: w58xØ40 mm		
	Warranty and Maintenance: At least 3 year on parts and 2 years on service		
2	Digital Laboratory Incubator (Gravity-air Incubators)	1 set	
	Capacity: 32L		
	Dimension (w x d x h) : Interior(mm) (312 x 290 x 360); Exterior(mm) (458 x 477 x 624)		
	Power supply/consumption: 150 W; 230 V , 50/60 Hz		
	Temperature: Range (Room Temp. +5°C to 70°C); Fluctuation (±0.2°C at 37°C, ± 0.3°C at 50°C); Variation (±0.6 °C at 37°C, ± 1.0°C at 50°C); Sensor (PT 100)		
	Control Resolution: ± 0.1 °C		
	Heat-up Time: 25 min. to 37°C, 40 min. to 50°C;		
	Recovery Time (Door open 30sec): 8 min to 37°C , 12 min to 50°C		
	Timer: 99 hr 59min (delay/continuous function)		

	Net Weight (kg): 32 kg		
	Warranty and Maintenance: At least 3 year on parts and 2 years on service		
3	Micro Centrifuge	1 set	
	Max. RPM/Fixed angle: 15,000 rpm		
	Max. RCF/Fixed angle: 21,583 xg		
	Max. capacity/Fixed angle: 10 X 5.0 ml , 24 x 1.5/2.0 ml, 4PCR strips		
	ACC/DEC ramps: 9/10 steps		
	Acc. Time to max. speed: ≤15 sec		
	Temperature range (°C): -10°C to 40°C		
	Time control: < 100 min, pulse, continuous		
	Time counting: From Starting		
	Program memory: 10		
	Imbalance cut off/ tracking: Yes		
	Rotor identification: manual		
	Dimensions (w x d x h) (mm) : 285 x 593 x 2281		
	Height with open lid (incl. a wheel): 525		
	Weight without rotor: aprox. 33kg		
	Power supply and consumption: 220-240V; 50/60Hz; 1.5 KVA (6.8A),		
	Warranty and Maintenance: At least 3 year on parts and 2 years on service		
4	Shaking Incubator	1 set	
	Temperature Range: Room Temp. +5°C to 60°C		
	Temperature Accuracy and Uniformity: ±0.2°C at 37°C, Uniformity: ±0.5°C at 37°C		
	Capacity: 127 L (Front Door-type)±5%		
	Shaking speed, stroke & motion: 30 - 250 rpm, 25mm, Orbital motion		
	Controller: Digital Fuzzy Controller with Jog-shuttle Switch (turn+Push)		
	Platform (included) & Capacity for Optional Flask Holders: Universal Platform for Various Shapes & Sizes of Flasks		
	Capacity: 35 ea Flask Holders for 50 to 100ml flask		
	16 ea Flask Holders for 200 to 300ml Flask		
	12 ea Flask Holders for 500 to 1,000ml Flask		

	Safety Circuit: Over tepm./Current Protector, Leakage Breaker		
	Heating and Refrigeration: Automatic Stop of shaking, Heating and refrigeration when a door opens		
	Connection: RS232C Interface for monitoring and Controlling with PC		
	Using: For Biological Cultures under various temperature		
	Power supply/consumption: 220-240V; 50/60Hz; 1.5 KVA (6.8A),		
	Warranty and Maintenance: At least 3 years on parts and 2 years on service		
	Lot 3 (UBB)		
1	Micropipette	4 Pcs	
	Proline Plus Manual pipette (1-ch): 0.1-3 μl	1 Pcs	
	Proline Plus Manual pipette (1-ch): 2-20 μl	1 Pcs	
	Micro mechanical (Proline Plus) pipette (1-ch): 20-200 μl	1 Pcs	
	Proline Plus single channel pipette : 100-1000 µl	1 Pcs	
2	Linear pipette stand 6 positions	1 Pcs	
3	Analytical Balance	1 unit	
	Maximum Weighing Capacity: 220g		
	Readability: 0.1mg		
	Repeatability: 0.1mg		
	Dimensions (W×D×H)(mm): aprox. 219*317*345		
	Weighing Chamber Height (mm): aprox. 240		
	Weighing Pan Dimensions (mm): Ø 90		
	Power Requirements: 220-240 V; 50-60 Hz		
	Draft Shield: Manual		
	External Calibration Weight: 200 g E2		
	Linearity: 0.2 mg		
	Sensitivity Drift between +10 °C and +30 °C		
	Net Weight, approximate: aprox. 6.2 kg		
	Display: LED screen with touch technology		
	Typical Stabilization Time: ≤ 1.5 s		
	Warranty and Maintenance: At least 1 year on parts and 2 years on service		

4	Laboratory pH Meter (One Set include (Meter + Probe(s) + Lab. Accessories + Reagents)	1 set	
	Power supply: 220-240V; 50-60 Hz; 1.5 V AA batteries (power cord)		
	HQ411D Laboratory pH metter		
	Electrode holder (universal Electrode stand: Included)		
	PHC101 Standard Gel Filled pH Electrode with 1 m cable (Cable Length: 1)		
	pH Buffer Kit: 4; 7; 10 (500 mL) (pH Buffer Sets: Color-coded: 4, 7, 10 pH;)		
	pH electrode storage solution (500 mL)		
	Automatic Buffer Recognition: Yes		
	Communication: Integrated USB type A (for USB 2.0 flash memory device, printer, keyboard) and Integrated USB type B (for PC)		
	pH metter and probe (s)		
	Dimensions (mm): 859 x 175 x 235		
	Instrument: Bench		
	Lock Function: Continuous / Auto-stabilization ("press to read") / At Interval		
	Measurement Method: Probe specific programmed method settings		
	mV Measurement at Stable Reading: Yes		
	mV Measurement Range: -1500 - 1500 mV		
	mV Resolution: 0.1 mV		
	Operating Error Messages: Clear text error messages displayed		
	Operating Humidity: 90 % relative humidity (non-condensing)		
	Operating Interface: Soft Touch Keypad		
	Operating Temperature: 0 - +60 °C (32 - 140 °F)		
	ORP Electrode Calibration: Predefined ORP standards (including Zobell's solution)		
	Parameter: pH/Oxydo Reduction Potential (ORP)		
	PC Data Transfer Software: HQd Series Meter Data Transfer Utility		
	IUPAC: 1.679, 4.005, 7.000, 10.012, 12.45 pH		
	DIN: 1.09, 4.65, 9.23 pH		

	User-defined custom buffer sets		
	pH Electrode calibration: 1 - 3 Calibration points		
	pH Measurement Range: 0 - 14 pH		
	pH Resolution: Selectable: 0.001/0.01/0.1 pH,		
	Probes included: PHC10101		
	Sensors: Sensor A: PHC10101, Sensor B: NA, Sensor C: NA		
	Temperature Compensation: Automatic Temperature compensation for pH		
	Temperature Measurement: °C or °F		
	Temperature Range: -10°C - 110 °C		
	Temperature Resolution: 0.1		
	Type of Measurement: Lab Water Quality applications.		
	Warranty and Maintenance: At least 1 year on parts and 2 years on service		
5	Water activity meter	1 set	
	Display: 6 bit backlight LCD digital display, (3 bit humidity aw, 3 bit temperature display)		
	Range: 0 – 1.0 aw		
	Accuracy: ± 0.02 aw		
	Sensor: non conductive humidity sensor		
	Sampling time: 5 minutes		
	Operating temperature: 0 – 50°C		
	Conditions: humidity < 95%RH		
	Power supply: 2 x 1.5 V AAA		
	Standard sample plate		
	Carrying case		
	Warranty and Maintenance: At least 1 year on parts and 2 years on service		
6	Stainless Steel Lab Spoon Chemical Reagent Sample Laboratory Scoop 20cm/30cm	1 set	
7	Bento Lab (Portable PCR machine set Lab)	1 set	
	PCR Thermocycler		
	Block size: 32 wells, 0.2 mL tubes		
	Ramp rate: up to 2.5 °C/s		

	Temperature Range: 12 °C to 105 °C		
	Temperature accuracy: ± 0.2 °C of programmed target		
	Temperature uniformity: ± 0.5 °C well-to-well		
	Lid temperature range: Ambient to 120 °C		
	Memory: Store up to 100 PCR programs		
	Centrifuge		
	Max Speed: 13,500 rpm		
	Max RCF: 8,000 g		
	Modes: Quick spin or timed spin		
	Capacity: 6 x 1.5 mL tubes		
	Gel Electrophoresis		
	Voltage: 50V – 120V adjustable		
	Gel tray dimensions (mm): 91*78		
	Gel volume: 25mL gel, 30mL buffer		
	Wells: 9 and 12 well combs		
	Transilluminator		
	Surface dimensions (mm): 105*85		
	Electronics Design: Blue LED array		
	LED wavelength: 468 nm		
	Material: Scratch-resistant acrylic plastic		
	System		
	Dimensions (mm): 330* 214* 81		
	Weight: aprox. 3.5kg		
	Power supply: 220-: 240 V ; 50-60Hz		
	Memory LCD Display, Click-Dial Interface		
	WiFi for software updates and connectivity		
	Gel box (Spare part)		
	Compactable to Bento Lab PCR thermocycler		
	Warranty and Maintenance: At least 3 year on parts and 2 years on service		
3	Lab Digital Refractometer	1 set	
	Unit of Measure Range Resolution Accuracy		

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	Urine Specific Gravity: range: 1.000 to 1.090; Resolution: 0.001; Accuracy: ±0.0002		
	Serum Protein: range 0 to 12; Resolution: 0.1; Accuracy: ±0.1		
	Refractive Index: Range: 1.3330 to 1.4098; Resolution:0.0001; Accuracy: ±0.001		
	Temperature °C: Range: 0 to 40°C; Resolution: 0.1; Accuracy: 1°C		
	Warranty and Maintenance: At least 1 year on parts and 2 years on service		
9	Biological Microscope	1 set	
	Microscope Frame:		
	Optical System UIS2 optical system		
	Focus: Vertical stage movement: 25 mm stage stroke with coarse adjustment limit stopper, torque adjustment for coarse adjustment knobs, stage mounting position variable, high sensitivity fine focusing knob (minimum adjustment gradations: 1 µm)		
	Illuminator		
	Built-in Koehler illumination for transmitted light, light intensity manager switch		
	high color reproductivity 2 W LED light source		
	Revolving Nosepiece		
	Interchangeable reversed quintuple/coded quintuple/sextuple/ septuple/coded sextuple/coded septuple nosepiece		
	Observation Tube		
	Widefield (FN 22)		
	Widefield tilting, telescopic and lifting binocular		
	Widefield tilting trinocular		
	Widefield trinocular		
	Widefield erect image trinocular		
	Widefield tilting binocular		
	Widefield ergo binocular		
	Widefield binocular		
	Super Widefield (FN 26.5)		
	Super widefield trinocular		
	Super widefield erect image tilting trinocular		
	Stage		

Ceramic-coated coaxial stage with left or right hand low drive control: with rotating mechanism and torque adjustment mechanism, optional rubber grips and stage handle extension adapter available (non stick grooved coaxial, plain, rotatable stages are also available)	
Condenser	
Abbe (NA 1.1), for 4X–100X	
Swing out Achromatic (NA 0.9), for 1.25X–100X (swing-out: 1.25X–4X)	
Achromatic Aplanatic (NA 1.4), for 10X–100X	
Phase contrast, darkfield (NA 1.1), [phase contrast: for 10X–100X, darkfield: for 10X–100X (up to NA 0.80)]	
Universal (NA 0.9), for 1.25X–100X [swing-out: 1.25X–4X, with oil top lens:(NA 1.4)]	
Low (NA 0.75), for 2X–100X (Dry)	
Ultra low (NA 0.16), for 1.25X-4X	
Darkfield dry (NA 0.8-0.92), for 10X-100X	
Darkfield oil (NA 1.20-1.40), for 10X-100X	
Microscope Digital Camera	
Image Sensor: Color CMOS	
Sensor Size 1/2 inch (6.55 × 4.92 mm)	
Resolution (max.) 2,048 × 1,532 pixels	
Pixel Size 3.2 × 3.2 μm	
Binning 2x, 3x, 4x	
A/D Converter (Bit Depth) 10-bit	
Exposure Time From 57 µs to 750 msec	
Live Frame Rates	
10 fps at 2,048 × 1,532 pixels (@ full resolution)	
28 fps at 1,024 × 768 pixels (@ binning 2x	
37 fps at 680 × 512 pixels (@ binning 3x)	
49 fps at 508 × 384 pixels (@ binning 4x)	
Cooling System N/a	
External Trigger N/a	
Data Transfer USB 2.0	
ICC color profiles	
Partial Readout Yes (in software)	

Remarks	
Convenient USB interface	
High frame rate at full resolution	
Easy installation	
Accurate color reproduction	
Operating System	
Windows 10 (32-bit or 64-bit)	
Windows 8/8.1 (32-bit or 64-bit)	
Windows 7 (32-bit or 64-bit) Ultimate/Enterprise/Business/Home-Premium	
Dimensions (H × W × D) 48.6 mm × 44 mm × 31 mm	
Weight Approx. 41 g	
Mount C-mount	
Warranty and Maintenance: At least 1 year on parts and 2 years on service	

In preparing your quotation, you are requested to observe the following:

1. Your quotation should be addressed to:

The Project Manager

Industry Linkage Office, Office A-206, Building A, Russian Confederation Boulevard, Phnom Penh, Cambodia

Phone: 092 475 547, E-mail: chhanthyda@itc.edu.kh Attn: Mrs. Chanthyda Nong, Procurement Officer

2. Your quotation should be delivered to the address above at or before **4:00 pm on**January 28th, 2021 and sealed with the mention **Do Not Open** Before 3:00 pm on

January 29th, 2021.

The Opening quotation will be 3:00 pm on January 29th, 2021 at the Institute of Technology of Cambodia and/or via online broadcasting on FoodSTEM Facebook page: https://www.facebook.com/FoodSTEMEUProject/

3. Eligible Goods and Services

Training a new generation of entrepreneurs in sustainable agriculture and food engineering (hereinafter called Erasmus+ FoodSTEM Project), reference number 610052-

EPP-1-2019-1-KH-EPPKA2-CBHE-JP, is a co-funded by the Erasmus+ Programme of the European Union and open to all eligible bidders.

4. Delivery of Equipment

This **Food safety equipment (Food safety Lab)** package contains three lots equipment, which lot 1 for ITC, lot 2 for RUA and lot 3 for UBB. Supplier shall deliver and install Equipment to the Purchaser's premises and to FoodSTEM University Partners premises as specified below.

Institute of Technology of Cambodia

Russian Confederation Boulevard, Phnom Penh, Cambodia

Royal University of Agriculture

Chamkar Daung, Dangkor Phnom Penh, Cambodia

University of Battambang

National Road 5, Sangkat Preaek Preah Sdach, Battambang city, Battambang 020101, Cambodia

The details of the repartition of equipment between universities is specified above.

5. Taxes, Duties, License Fees

The Supplier shall be responsible for taxes, license fees, etc., incurred during the delivery of the contracted services to the purchaser.

6. Warranty

At least one year warranty on all items must be included in the final price.

7. Payment

Payment will be made by bank transfer presenting the full amount shown in the Invoice with detail statement. In the quotation, need to state the name, identity card number and address of the representative authorized to collect payment. Payment for supplies will be made when Equipment are installed at FoodSTEM University Partners as follow:

- University of Battambang
- Royal University of Cambodia
- Institute of Technology of Cambodia.

The payment will be based on fixed price.

8. Evaluation of Quotation

The purchaser will determine which quotation responds to the Description and, the price, is acceptable from a technical point of view. Quotations which are not responsive will be rejected and will be eliminated from further consideration. The purchaser reserved the right to accept or reject any quotation and annul process of inviting quotation and reject at any time prior to award of the contract, without thereby incurring any liability to the affected supplier or any obligation to inform the affected supplier of the grounds for the Purchaser's action.

9. Validity of the quotation

Prices of the quotation shall be valid for 1 to 3 months from the date of your submission of quotation.

We look forward to receiving the quotation before the time and date stipulated above. Quotation received after this date will be rejected and returned to the supplier unopened.

Yours sincerely,

Sokneang IN

Project Manager, FoodSTEM