S.M.C. College of Dairy Science
Anand Agricultural University, Anand-388 110

E-TENDER NOTIFICATION

(Through Gujarat Government e- procurement portal only)

Website: https://www.nprocure.com

The Principal, S.M.C. College of Dairy Science, Anand Agricultural University, Anand invites tender through e-procurement portal for purchase of Industrial Process Control Trainer, Extruder, Air Compressor, Automated KJEL-plus Nitrogen Analyzer, Biomass Briquetting/Pelleting & Gasifier System, Gas Flow Meter (Non-contact flow meter) and Solar Training System. The details of the tender are available on https://www.nprocure.com in the name of College of food Process Technology & Bio-energy, AAU, Anand. The tender details can be also seen on http://www.aau.in.The tender fee, EMD and other certificates/ specifications/ documents in physical form are to be sent by **post/speed post only** to the address given above.

Bid document downloading start date: 17 -11-2014.

Bid document downloading end date: 03 -12-2014.

Last Date for physical submission of tender fee, EMD and other documents: 08 -12-2014.

Principal
S.M.C. College of Dairy Science
Anand Agricultural University, Anand

For official use only

Tender No:		*Signature:*		*Date of Issue:*	

TENDER FORM

for

INDUSTRIAL PROCESS CONTROL TRAINER, EXTRUDER, AIR COMPRESSOR, AUTOMATED KJEL-PLUS NITROGEN ANALYSER, BIOMASS BRIQUETTING/PELLETING & GASIFIER SYSTEM, GAS FLOW METER (NON-CONTACT FLOW METER) AND SOLAR TRAINING SYSTEM

DOWNLOADED FROM WEBPAGE

Last date of tender submission to reach the office through post

08-12-2014

NOTE

Payment of Rs. 500/- by DD drawn in the favour of "AAU Fund A/C", as tender fees payable at Anand should accompany this form separately otherwise the tender form shall be treated as incomplete and cancelled.

SHETH M. C. COLLEGE OF DAIRY SCIENCE
ANAND AGRICULTURAL UNIVERSITY, ANAND - 388 110 (GUJARAT)

Tel. /Fax No.: 02692 -261030

Terms and Conditions:

- The quotation must be in Indian rupees and rates quoted should be **inclusive of all applicable Taxes and F.O.R. at Anand at our Laboratories inclusive of packaging, forwarding, freight & insurance, installation, commissioning and demonstration by technical team at our site and one year extended warranty of spares and equipment.**
- Our university will supply custom / central excise duty exemption certificate for being educational institute.
- Validity of the quotation should be **120** clear days from the last date of receipt of the quotation.
- **Payment shall be made only after satisfactory installation and demonstration. No advance or part payment or payment through bank can be entertained.**
- Tender forms only from original manufacturers/ their authorized dealers/ stockists who are in the concerned field will be considered, along with the said certificate.
- The credentials of the party, list of customers and complete illustrated literature should be enclosed with the tender form. The firm should be ready for pre inspection of the item and its performance, if necessary.
- All the electronic hardware should comply with international standards for safety, electromagnetic emissions and immunity, CE/FCC Mark/Certification, etc.
- Tenderers will have to attach original colour catalogue of the each quoted product ensuring exact specifications.
- In case of defective items, the same shall have to be replaced by the party concerned at its own cost, and risk, and within stipulated time.
- The Earnest Money Deposit (EMD) in the form of account payee Demand Draft in the name of "AAU Fund Account" payable at Anand, shall have to be accompanied with the filled Tender Forms. Tender submitted without EMD shall not be considered. The deposit shall be forfeited if the party in any case is not able to supply the odered goods in stipulated period and at the rates approved.
- Duly filled tender forms in sealed envelopes through **post/speed post only** should reach the office of the Principal, Sheth M. C. College of Dairy Science, Anand Agricultural University, Anand 388 110 before **17.00 hr on 08-12-2014**
- Please super scribe the envelope, **"TENDER DOCUMENTS FOR EQUIPMENT: DAIRY SCIENCE COLLEGE, ANAND"** and mention clearly senders' name and address.
- The PRINCIPAL shall be empowered to reject any one or all the tenders without giving any reason for doing the same. This shall not be challengeable in the Court.
- Parties may be called for scientific discussion and price negotiation, if required
- In case of disputes, decision of Vice Chancellor, Anand Agricultural University, Anand will be final and acceptable to all the parties.

- **Name of supplier / firm:**

- **Complete postal address:**

- **Telephone Number:**

- **FAX Number (if any):**

- **e-mail address (if any):**

- **Details of Tender fee:**

  D.D.Number: **Bank's Name:**

  Amount: **Date:**

- **Details of EMD:**

  D.D.Number : **Bank's Name:**

  Amount: **Date:**

- **Sales Tax No. :**

- **Registration No. :**

- **Any other details**

We agree to abide by the terms and conditions of supply mentioned in this tender document

Signature of Tenderer
(With Stamp, Name, Designation and date)

Lowest competitive rates are hereby invited for the purchase of Equipment/instruments with following specifications

Sr. No.	Specifications and other details of items to be purchased	EMD (Rs.)	Quantity
1.	**INDUSTRIAL PROCESS CONTROL TRAINER** **Application:** The Industrial Process Control Trainer is to be used for demonstration and conducting experiments for the students to understand the principles of the various process monitoring, functioning and controlling of various parameters at laboratory level. The system should have various types of controls normally used in the industries for monitoring various parameters such as temperature, pressure, flow, level, displacement etc. with PLC based control system. **System description:** The system should operate on 240 V, 50 Hz single phase AC power supply. The whole system comprising of two major parts as indicated below. 1. The control panel rack consisting of PLC, various transmitters, other indicating devices and necessary input /output devices. 2. The base unit with all sensors, different types of valves, pumps, heaters, air compressors, temperature, pressure, level, flow measuring devices, supply tanks, measuring tanks, other necessary component required for the system functioning etc. mounted on stainless steel frame work. **Technical Specifications:** **1. Parameters to be monitoring and control are as follow.** a) Temperature controller with Pt-100 type up to 200° C Sensor with transmitter having output of 4 – 20 mA b) Flow controller using air & water with the following system components ➢ Rotameter ➢ Orificemeter ➢ Venturimeter c) Level controller with digital & analog control system, DPT, GPT, Type 2 wire with range of 0-500 to 600 mm H_2O having output of 4 – 20 mA d) Pressure-controller with digital & analog control system, with range of 0-2.5 bar with double safety margin having output of 4 – 20 mA e) Displacement control system with analogue and digital control and transmitters system **2. Control system should have the following features.** It should have DCS control, Modbus communication, system of on/off, P, PI & PID and facility for manual and auto-tuning, with close loop & open loop control, Zigler Nicholas method tuning	21000/-	1 No

	facility, Bode Plot analysis facility, communication facility with Ethernet, with facility to introduce external controller, with cascade feed forward ratio control three element control and interactive controlling facility. The control unit should have hybrid controller with AI 8, AO 4, DI 16, DO 16 or as required, control loop 8 with communication part and Ethernet RS 485. It should be of **PLC** touch screen type. **3. The skid mounted mechanical arrangement should include** a) Air compressor, air tank and necessary accessories. b) Centrifugal pump with necessary accessories. c) Positive displacement pump with necessary accessories. d) Process tank, interactive tank and supply tank of appropriate size fabricated from S. S. 304. e) Instruments/devices for the measurement and control of various parameters which include flow, pressure, level, temperature, displacement etc. It should include flow meters, rotameters, venturimeters, level and position transducers, various sensors and transmitters for different parameters, solenoid valves, pneumatic control valve, bank of heaters 3 kW, heating , magnetic flow switch, pressure gauges, VFD, relays, regulators etc. All these items should have appropriate range to match with the monitoring and control systems. **4. Optional Item: (Quote the price separately)** Remote monitoring display unit with all necessary input-output devices and necessary official versions of softwares and operating systems.		
2.	**EXTRUDER** **Technical specifications:** **Laboratory scale twin screw extruder (pilot plant)** for the manufacture of **ready to eat puffed snacks/foods**, designed for teaching, R&D and product development to process food materials like Maize, Rice, Wheat and Milk Products like Milk powders, Khoa, Casein, WPC etc., which can be extrudable without abrasive materials, either as constituents or as contaminants. The equipment should have following features. ❑ Nominal rated capacity of **5-10 kg per hour** (depending upon nature of feed materials and quality of products desired) ❑ **Hopper and Feeder** assembly with **variable speed drive** which can be monitored from RPM meter. ❑ Barrel fabricated from AISI 316 grade S.S. with water jackets. ❑ Band Heaters in 3 sections with appropriate watt density to get temperature in the range of 150 – 350°C with proper insulation with necessary controls to operate each section individually. ❑ Extruder Screws of the machine fabricated from Nitriding Steel/suitable food grade material suitable for ready to eat puffed products. ❑ Should have at least 3 feeding ports for addition of different	21000/-	1 No.

	ingredients like flavor, colour, water, oil etc. with proper dosing assembly. ❑ **Drive – Suitable drive with reduction gear** driven by AC drive i.e. frequency converter to control rpm, with safety device. ❑ Sanitary design and arrangement suitable for easy cleaning and sanitization of the machine along with rodent proof features. ❑ Die Plate assembly with round dies of different diameter (3 to 9 mm), one no. flat die and one no. pipe die. / expanding die for Collet type product ❑ **Stainless steel cutter**, driven by **variable speed motor and safety device**. ❑ Temperature Controller-Indicator with sensor for Band Heaters and Electronic Temperature Indicator with sensor for mass temperature. ❑ RPM meters for monitoring the RPM of Main Drive, Feeder & Cutter. ❑ Panel mounted Ammeter, Voltmeter, Push-button Switches, Indicating Lamps, indicators, etc. ❑ Chassis fabricated from S.S		
3.	**AIR COMPRESSOR** **Technical Specifications:** 1. Type : Screw type 2. Drive: Direct Coupled, Three Phase 3. Motor: 15 kW / 20 HP 4. Working Pressure: 8 bar gauge 5. Discharge: 90 – 95 CFM 6. Noise level: Not more than 70 db 7. Refrigerated air dryer for dehumidification and drying: 150 CFM capacity 8. Air receiver: 500 lits , vertical type 9. Pre-filters for air: Capacity 150 CFM 10. Necessary controls, pressure gauges and safety devices. We require one additional motor as spare for the system. Kindly mention the warranty/guarantee for each component of the system.	15000/-	1 No.
4.	**AUTOMATED KJEL-PLUS NITROGEN ANALYSER** **Technical Specifications:** **1.** **<u>Automatic Digestion System with Auto lift facility</u>** Twenty Place 250 ml capacity Block Digestion System with Auto lift, Aluminium Block with Casted Aluminium Alloy Heaters, Direct USB Port for PC/Laptop Connectivity, Digital LCD display, Auto lift to enable automatic loading of samples before digestion and for automatic lifting of hot digestion tubes along with the rack after completion of digestion, Data logging with real time clock, Memory stick for data storage. All essential accessories like Digestion Tubes 250 ml, SS Insert Rack, Exhaust Manifold, Suction assembly for safe removal of acid fumes, Additional two sets tubes & 2 Nos. Insert Rack.	21000/-	1 No.

	2. <u>Acid Neutralizer Scrubber System</u> Four Stage Fully Automatic Microprocessor based acid neutralization scrubber with digital display integrated online with digestion system, Should automatically start on operation of digestion system, Inbuilt pump for water recirculation, auto waste disposal & auto drain of tank water after pre programmable consecutive operations. **3. <u>Automatic Distillation System</u>** Fully automated value added touch screen **premium version** auto sequencing microprocessor based, PC compatible distillation system with inbuilt software with 14 programmable steps and 100 pre-definable user storage auto sequence programs with standard data processing system (Laptop version) **4. <u>Refrigerated Water Circulating System</u>** Refrigerated Water Circulating system with digital display of temperature, Microprocessor based PID Temp. Controller, Inbuilt safety features with CE Certification. 10 Litres Tank, Submergible pump for recirculation **5. <u>Accessories</u>** a) <u>For Digestion System:</u> Digestion Tubes (Macro) 250 ml Volume, SS insert rack for 20 Macro digestion tubes b) <u>For Distillation System:</u> Receiver Flasks **6.** All the components should be ISO 9001: 2008 Certified and Electrical Requirement of 220 - 230V/50Hz		
5	**Biomass Briquetting/Pelleting & Gasifier System**	45000/-	1 set
	Woody biomass based downdraft gasifier for thermal applications. The Gasifier should be coupled with: 1. 200 kg/h boiler having working pressure of 10.5 kg/cm^2. 2. Hot Air Generator for food drying application having capacity of supplying 200 m^3/h hot clean air at 120 °C temperature. Gasifier along with basic accessories and auxiliaries like provision of ash/char removal system, wood cutter machine, moisture meter. All necessary electrical wiring and cabling for the Gasifier, boiler and dryer. Piping between the Gasifier and Boiler/dryer burner limited to 5 meter length for each case. Boiler: Shell & tube/ coil type, vertical having capacity of 200 kg/h steam at a pressure of 10.5 kg/cm^2, gas fired Hot air dryer: Double wall construction on heavy iron angle, 200 m^3/h hot clean air supply at 120 °C temperature, air flow control system, glass wool insulation, digital electronic temperature controller, 12 numbers SS trays of 54”X21”X42” size. It should include all taxes, transportation charges, supervision of installation and commissioning charges, complete in all aspects and FOR at our College site.		

6.	**Gas Flow meter (Non-contact Flow meter)**	10000/-	1 No.
	Wide flow measurement range from 0.01 to 32m/s Bi-directional measurement Totaliser for net, positive and negative flow. High accuracy, better than ±1% of velocity. • Wide pipe size range: 15 to 6000 mm. • Suitable for all commonly used pipe materials. • Rechargeable battery with 10 hours of operation. • Built-in data logger. • Self-explanatory user interface. • Windows PC software for data down-load and real-time data display. • Signal quality tracking and self-adjusting capabilities that automatically match transducer to pipe material. • Can also be deployed as a remote RTU for long-term flow monitoring application • Easy and economical installation. • Non-invasive, no pipe disturbance, no pressure drop and no moving parts. • Ideal for both clean and opaque liquid as well as gas flows. Branded laptop for data acquisition and analysis should be supplied with this.		
7.	**Solar Training System**	15000/-	1 set
	The system for training for solar training should include minimum following. **The rates should be quoted for the set comprising of all the items from A and B.** **A) Solar PV Training and Research System** It should at least include following: **Power Generating Unit: with** PV Modules 74Wp, Artificial Source of Radiation 900W/m^2, Radiation intensity regulator, manual tracking system **Power Conditioning Unit:** with DC-DC Converter (automatic/user-Defined), Inverter (automatic/user-defined), Potmeter, Voltmeter (AC/DC), Ammeter (AC/DC), temperature meter, Lead-Acid Batteries, load box (AC/DC) **Data Logger and Plotter:** with PC Interfacing **Other Accessories:** Radiation meter, connecting wires, experimental manual, shading elements **B) Solar PV Grid Tied Training System** It should at least include following: **Power Generating Unit:** with PV Modules 460 Wp **Power Conditioning Unit:** with Grid – Tied Inverter, Voltmeter (AC/DC), Ammeter (AC/DC), Power Analyzers **Artificial Grid Unit:** with stand alone inverter with battery bank **Other Accessories:** Radiation meter, connecting wires, experimental manual		