જુનાગઢ કૃષિ યુનિવર્સીટી, જુનાગઢ

ટૂંકી મુદતની જાહેરાત નિવિદા

કૃષિ ઈજનેરી અને ટેકનોલોજી કોલેજ હસ્તકના વિવિધ વિભાગોમાં CO_2 & O_2 એનેલાઇઝર વિથ ડાટા લોગર, સોલાર હાઈડ્રોજન કીટ, ફ્યુઅલ સેલ ટ્રેઈનર, ડીજીટલ ગેસ ફ્લો મીટર, ગેસ કમ્બસન એનેલાઇઝર, ડીજીટલ એનર્જી મીટર, સોલાર પીવી પેનલ્સ, બાયો ડીઝલ પ્રોડક્શન પ્લેટ, બાયોગેસ કંટ્રોલ યુનિટ, મલ્ટી ચેનલ ડાટા લોગર,એર ટેમ્પરેચર એન્ડ હ્યુમીડીટી સેન્સર, લાઈટ સેન્સર, પીએઆર સેન્સર, CO_2 ગેસ સેન્સર, ઝીમાન ઇફેક્સ એપરેટસ, ઓસીલોસ્કોપ, ટ્રેક્ટર ટ્રેઈલર, ડીજીટલ ટોર્ક મીટર, આઈસ પ્લાન્ટ ટ્યુટર ૩૦ કેજી, વોટર ચિલીંગ પ્લાન્ટ, વિન્ડો એર કન્ડીશનીગ સાઈકલ ટેસ્ટ રીગ, ડીજીટલ મેનોમીટર, ગ્રાઉન્ડ વોટર લેવલ ઈન્ડીકેટર, વોટર સ્ટેઇજ રેકોર્ડર, ડીરેક્ટ શેર એપરેટસ (બાય બેક), મેટાસેન્ટ્રીક હાઈટ ઓફ શીપ મોડલ, પાઈપ ફ્રીકશન એપરેટસ, મેનોમીટરસ, ફ્રાન્સીસ ટર્બાઈન ટેસ્ટ રીગ, ડીજીટલ પ્લેની મીટર, ઇન્ડિયન સેટેલાઈટસ એન્ડ સેટેલાઈટ લોન્ચીંગ વ્હીકલસ મોડલસ, પોર્ટેબલ ટીડીઆર સોઇલ મોઇસ્ચર મીટર,પ્રેસર પ્લેટ એપરેટસ, પ્લાન્ટ કેનોપી એનેલાઇઝર, મીની ડિસ્ક પોર્ટેબલ ટેન્શન ઇન્ફીલટ્રો મીટર, સેપ ફ્લો મીટર, કલીનોમીટર કંપાસ અને ઇન્કયુબેટર કમ મિક્સર ખરીદવાના હોય ઈચ્છુક ઉત્પાદક તથા વેપારી ભાઈઓએ ઇન્સ્ટોલેશન સાથેના ભાવ આપવા માટેની વિસ્તૃત જાહેરાત યુનિવર્સીટીની વેબસાઈટ www.jau.in અને www.statetenders.com પરથી આ જાહેરાત પ્રસિધ્ધ થયાના દિવસે મેળવી તા.૩૦/૦૧/૨૦૧૭ સુધીમાં નીચેના સરનામે માત્ર RPAD/ પોષ્ટ થઈ પહોચતા કરવાના રહેશે.

આચાર્ય અને ડીન
કૃષિ ઇનજેરી અને ટેકનોલોજી કોલેજ
જુનાગઢ કૃષિ યુનિવર્સીટી, જુનાગઢ

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Appendix for Specification

Sr. No.	Name of Instruments	Quantity	Specification	Approx. Quantity
Department of Renewable Energy and Rural Engineering				
1	CO_2& O_2 Analyser with Data Logger	1	Microprocessor based CO_2& O_2 Analyser O_2 Range: 0 - 100% CO_2 Range 0 - 10% Response Time (O_2): 15 Second Response Time (CO_2): 15 Second Power Requirement 10 - 50V DC (5W) Operating Temperature: 0 - 50°C Storage temperature: -20 - 70°C With Memory card data logger	
2	Solar Hydrogen kit	1	Reversible PEM fuel cell Reversible PEM fuel cell base Hydrogen and oxygen tanks Inner gas containers Water/gas tank module base Transparent silicon tubing Flexible 2mm banana connecting leads Plastic plug pins for fuel cell Battery pack with connecting leads Syringe Motor and fan with propeller blade Solar panel of suitable size Assembly instructions CD with curriculum manuals Matlab Software Laptop Data acquisition system	
3	Fuel Cell Trainer	1	• Fuel Type: Dry Hydrogen, H2 99.9% pure • 30 Litres filled at 140 bar pressure Hydrogen Cylinder • Double Stage Pressure Regulator for Hydrogen Cylinder: 2 Pressure Gauge for Inlet and Outlet Pressure: - Inlet Pressure Gauge- 0-250 kg/m^3 - Outlet Pressure Gauge- 0-4 kg/m^3 • 0-4 kg/m^3 Pressure Gauge with adaptor • 20 LPM Rotameter • 13V & 8A SMPS • Hydrogen Leak Detector: Portable, Alarm at 10% level, 2 min warm up time, 2 Sec response time	
4	Digital Gas Flow Meter	1	• Multiple gas flow measuring meter • Accuracy: +/- 5% of full scale • Pipe size from 1-inch to 4-inch • Gas temperature: 0-500 °c • Power supply : 230V AC, 50Hz	
5	Gas combustion analyzer	1	• Combustion efficiency analyzer for O_2, CO, CO_2, No_x • Combustion safety analyzer for c_xh_y • High rang co sensor (0-8000ppm) • High rang co sensor for over range protection • 600-1000 internal test memory • Pc Software package with USB • Rechargeable lithium ion battery pack with AC	

			charger	
6	Digital Energy Meter	1	• Single Phase/ Three Phase • LCD display • Accuracy: class 0.2s • Power direction automatic recognition and indication function • Main frequency 50 Hz ± 5% • Maximum direct input current is 80A AC • Pc Software package with USB • Measure and display three phase electrical parameter, such as 3 phase/ single phase, voltage, power, frequency • Auxiliary Supply: AC:110/240v, DC: 24/30/48/110/220v	
7	Solar PV Panels	1	Polycrystalline Silicon Solar PV Module of 250 W, 24V capacity	20 Nos.
8	Bio-Diesel production Plant	1	• **Bio-Diesel unit** comprising Trans-esterfication Reactor, Washing/Drying Vessel, Methoxide Reactor, Reflux and Recovery Condenser, etc... • **One liter Bio-Diesel Laboratory kit:** 1 litre Bio-Diesel lab kit along with lab accessories. • **Oil Expeller:** 25-30kg/hr capacity along with oil filter press assembly, motor etc., • Accessories, tools and tackles... • Including all taxes and charges like Packing, forwarding, loading & transportation charges, training to our staff etc.	
9	Biogas Control Unit	1	- Anodized aluminum structure and panels in painted steel. - Main metallic elements in stainless steel. - Diagram in the front panel with similar distribution to the elements in the real unit. - 2 Packed anaerobic digesters of 5 l. Reactors packing: 25 mm. diameter bactoballs. - 2 Heating blankets of 120W with a thermostat and a temperature probe to control the heating temperature. Temperature range: 0-90°C. - 4 Peristaltic pumps. - Feeding flows measurement by the pumps calibration. - 2 Volumetric tanks for the storage and volume measurement of the generated biogas. - Buffer vessel, of 1 l. of capacity. - 2 Pyrex vessels, of 1 l. of capacity, for the acid and the base. - Methane sensor to measure its concentration in the generated biogas, 0-100%. - 2 pH meters, range: 0-14. - 2 Temperature sensors, "J" type. Electronic console: - Metallic box. - Temperature sensors connections. - Digital display for the temperature sensors. - Selector for the temperature sensors. - Methane sensor connection. - Digital display for the methane sensor. - Pumps switches. - Pumps controllers.	

			- Heating blankets switches.
			- Cables and Accessories, for normal operation.
			- Manuals: This unit is supplied with the following manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.
			- **Dimensions:**
			  - Unit: 1000 x 800 x 1000 mm. approx. (39.37 x 31.49 x 39.37 inches approx.).
			  - Weight: 70 Kg. approx. (154.32 pounds approx.).
			  - Electronic console: 490 x 330 x 310 mm. approx. (19.29 x 13 x 12.20 inches approx.).
			  - Weight: 10 Kg. approx. (22 pounds approx.).	

10	Multi-Channel Data logger	1	Multi-channel data logger with fully computerized, digital and self-contained power source system, fitted with Logger and battery charging solar panel with rechargeable, maintenance free batteries mounted on a tripod stand with sealed waterproof enclosure for Data Logger, Solar charger and battery. All Sensors Powered directly from Data Logger and no need of external power source. Standard System comes with facility to transport Data from Data Logger to a P.C. through pen Drive. 16x2 alphanumeric display and 4x2 membrane keypad is provided at front panel of data logger for programming data logger and monitoring sensor reading at site without the help of computer. **Data Logger Specification** • Display: 16 Characters X 2 Lines alphanumeric display. • Measured Parameter – **Date, Time, Sensors specific data, & Battery Voltage.** • Real Time Clock: Provided. • Number of Channels: 32 channels • Channels Configuration: Configured limited to sensor selection. • Logging Interval: 1 min to 24 Hour with facility to program log Start time within next 24 hours • Data Storage: sufficient for storing 1 year data at user's selectable 1 hour logging interval. • Power Supply: 12V Sealed Maintenance Free battery • Clock accuracy: ±5 seconds per week • Battery Charging: Through Solar Panel • Weatherproof enclosures: provided. • Operating Temperature: - 40 to 75 °C. Operating Humidity: 0 to 95 % non-condensing. • Data retrieval: Through Pen Drive **Mounting Mast & Solar Panel** • Mast: Stainless Steel Tripod Stand with sensor brackets. • Solar Panel: Output Voltage: 12 Volt DC, Wattage: 20 Watt **Application Software** • Software should be a user-friendly, Menu Driven, Windows based software allows to view & save collected data from data logger to	

			computer/laptop. Data file should be saved in Microsoft's Excel format. **Data Retrieval option:** • The standard system comes with data retrieval option through Pen Drive. • Pen Drive is a pocket-sized device that can be used to download & transport the data from Data Logger to a computer (USB Port), allowing the instrument to stay in place for continuous monitoring/recording. The shuttle connects to a PC	
11	Air Temperature & Relative Humidity Sensor	1	• Type: Digital Sensor. • Temperature Range: - 40 to 123.8 ° C. • Accuracy: ± 0.5 ° C @ 5 to 40° C. • Resolution: 0.01 ° C Typical. • RH Range: 0 to 100 %. • Resolution: 0.5 % RH Typical. • Accuracy: ± 2% @ 20 to 80 % • Long term stability: Typ<1%RH/ Year • Repeatability: ± 0.1 %. • Output: Digital (2 wire communication) • Sensor cable length : 25 m • Compatible with Multi-Channel Data logger	8 Nos.
12	Light Sensor	1	• Radiation Range: 0 – 2000 w/m2 • Cosine response @ 45° zenith angle: ± 4 % • Cosine response @ 75° zenith angle: ± 10 % • Absolute accuracy: ± 5 % • Repeatability: ± 1 % • Output: 0.200 mV / Wm-2 • Sensitivity: Custom calibrated to exactly 5.00 W m-2/ mV • Operating environment - 40 to 55 °C; 0 to 100% RH • Sensor cable length : 25 m • Compatible with Multi-Channel Data logger	8 Nos.
13	PAR Sensor	1	• Quantum / PAR sensors are often used to quantify the light available in greenhouse settings. The line quantum sensor • is especially helpful, as it provides a spatial average. • Absolute accuracy ± 5 % • Uniformity ± 3 % • Repeatability ± 1 % • Output: 0 to 5 V (4.0 V = full sunlight 2,000 µmol m-2 s-1) • Input power 5 to 5.5 VDC • Current draw 285 µA • Operating environment - 40 to 55 °C; 0 to 100% relative humidity. Designed for continuous outdoor use. Can be submerged under water (with or without mounting screw). • Sensor cable length : 25 m • Compatible with Multi-Channel Data logger	8 Nos.
14	CO_2 Gas Sensor	1	• Range: 400-2000 PPM, 400 – 10000 ppm • Resolution 10 ppm • Accuracy: ±(50 ppm + 5%) readings 2	8 Nos.

			• Sensor cable length : 25 m • Compatible with Multi-Channel Data logger	
15	Zeeman effects Apparatus	1	(a) Constant Deviation Spectrograph. Long arm with Prism (b) Micrometer Eye-piece (c) Zeeman effects with Fabry-perot Etalon(Special Type)(Imported) (d) Electro-Magnet: EM-20 Magnetic field strength between the poles at 1cm gap 20 kilo Gauss (e) Power supply for above Electro magnet (f) High voltage Transformer for discharge tube(Imported) (g) Discharge tube He or Ne (Special Type) (Imported)	2 Nos.
16	Oscilloscope	1	25 MHz Duel channel digital storage Oscilloscope imported colour screen 7'' size	
			Department of Farm Machinery and Power	
17	Tractor Trailer	1	**A- Tractor Trailer, Hydraulic 2-Wheel type** -Capacity: 6 tonne, 2-Wheel, Heavy Duty, Hydraulic (tipping) -Trailer Size: 10' x 6' x 28", -Tire size: 9.00 x 16, ply-16 -R.T.O. Tax, With Passing fees and 1 year insurance and delivery charge **B- Tractor Trailer Hydraulic 4-Wheel** -Capacity: 10 tonne, 4-Wheel, Heavy Duty, Hydraulic (tipping) Trailor -Trailer Size: 11' x 6' x 21", -Tire size: 9.00 x 16 standard make ply- 16 -R.T.O. Tax, With Passing fees and 1 year insurance and delivery charge	
18	Digital torque meter	1	-Digital torque meter/ Digital telemetry system, (to measure torque of Tractor PTO operated machines) which can measure torque for 6-70 hp tractor's PTO -Capacity: 0-100 Kg-m -Maximum rotational speed : up to 10000 per minute for torque measurement : up to 3000 per minute for rotational speed measurement -Remarks: transportation, installation, testing and with 2-year guarantee and including all the taxes	
19	Ice Plant Tutor:-30 Kg	1	**Compressor:** Hermetically sealed compressor. **Condenser:** Air Cooled condenser made out of copper pipe & Aluminum fins of matching capacity with fan cooling. **Brine Tank:** Brine Tank made out of stainless steel sheets, insulated from all sides with provision to hold cans, evaporator coil at one side & an arrangement to drain the brine solution. A door is provided at the top of this tank.	

			Expansion device: Thermostatic expansion valve (Danfoss make). **Energy Meter:** For power measurement of compressor. **Pressure Gauge:** 2 Nos. for H.P., L.P. measurement Suitable filter / drier. Hand Shut Off type Service valve. Ice Can: 9 Nos. Set of thermocouples. 12 Channel Digital Temperature Indicator **HP-LP Cutout:** Make Ranco /Danfoss or Equivalent. **Switches:** For compressor, condenser fan &a agitation system. **Voltmeter:** 0 - 250 V. **Ammeter:** 0 - 15 A. **Thermostat:**Ranco or equivalent	
20	Water Chilling Plant	1	**Compressor:** Hermetically sealed compressor. **Condenser:** Air Cooled condenser made out of copper pipe & Aluminum fins of matching capacity with fan cooling. **Evaporator:** Copper Coil Limpeted water jacket. The evaporator is insulated from outside to prevent heat loss. **Expansion device:** Capillary Tube. **Energy Meter**: for power measurement of compressor. **Pressure Gauge**: 2 Nos. for H.P., L.P. measurement **Rota meter** for Refrigerant flow measurement. Set of thermocouples. 12 Channel Digital Temperature Indicator HP-LP Cutout: Make Ranco /Danfoss or Equivalent. **Switches:** For compressor & condenser fan. **Voltmeter:** 0 - 250 V. **Ammeter:** 0 - 15 A. **Thermostat:**Ranco or equivalent	
21	Window Air Conditioning Cycle Test Rig	1	**Compressor:** Hermetically sealed compressor. **Condenser:** Air Cooled condenser made out of copper pipe & Aluminum fins of matching capacity with fan cooling. **Evaporator:** Air calorimeter type evaporator. The air passed by a fan through duct. The expanded refrigerant passes through evaporator coils, fixed in the duct. The passing air comes in contact with the coils & gets cooled. **Expansion device**: Thermostatic expansion valve. **Duct:** Air duct in which evaporator is fitted. **Blower:** Suitable capacity blower with air control arrangement. Set of thermocouples. 12 Channel Digital Temperature Indicator **HP-LP Cutout**: Make Ranco /Danfoss or Equivalent. **Voltmeter:** 0 - 250 V. **Ammeter:** 0 - 15 A	

22	Digital manometer	03	SPECIFICATIONS: Accuracy: ±0.3% FS, Resolution: Pressure range: 0-30psi, ±0.2% FS Accuracy, Engineering Units (User Selectable): psi, mbar, bar, cmH2O, kg/cm2, kPa) Temperature Effects: ±0.2% FS typical (±1% max), Pressure Media: liquid/gas, Response Time: 0.5 sec Pressure Connections/Tubing Size: Hose barb for 4 mm ID tubing, Battery: 9V battery (included).	
23	Ground water level indicator	3	SPECIFICATIONS : • Tape material : Strip type Polyethylene virtually non expandable, corrosion proof • Signal : Audible buzzer and light • Battery : 9 V battery • Tape graduation : 1 cm or less marked • Cable length : 100m/200 mt. NOTE: The separate prices should be quoted for groundwater level indicator of 100m and 200m cable length.	
24	Water stage recorder	1	SPECIFICATIONS : • With data logger to collect real time data and with internal storage memory. • With the real time clock with LCD display. • Weatherproof enclosure with power supply. • With horizontal chart drum of the recorder with clock mechanism • With float and counter weight and capillary pen stylus with two Ink bottles. • The clock movement the stylus from left to right at 1 cm/hour for daily as per the different gear ratio setting. With printed 100 charts for different duration	
25	Direct Shear Apparatus (Buy back)	1	SPECIFICATIONS : 12 speed, Motorized IS : 2720 (Part XIII) IS:11229 It should be provided with a turret type gear box to get 12 different constant rates of strain i.e 1.25, 0.625, 0.25, 0.125, 0.05, 0.025, 0.01, 0.005, 0.002, 0.001, 0.0004, and 0.0002 mm/min. and arrangements to carry out residual shear strength tests. Horizontal loading system for shearing the specimen. Hangers are provided for creating normal stress. It comprises :- i) Shear box assembly, 60 mm square, complete with a U-bracket, guide pins and spacing screws, made of brass. ii) Gripper assembly consisting of two plain grid plates, two perforated grid plates, one base plate and one loading pad, all made of brass. iii) Two porous stones, each 6 mm thick, fitting the shear box iv) Shear box housing of brass, complete with two ball roller strips. v) Loading unit with normal loading of 8 kg/cm2 on 60 mm square specimen. vi) Specimen cutter for a specimen size of 60 mm x 60 mm x 25 mm. vii) Set of weights to give a normal stress upto 3 kg/cm2 through lever, comprising 4 of 0.05 kg/cm2 , 1 of 0.1 kg/cm2, 1 of 0.2 kg/cm2, 3 of 0.5 kg/cm2 and 1 of 1 kg/cm2. Complete as above but without dial gauges and proving ring. Proving Ring (Integral) capacity 200 kg (2 kN) (Tension/Compression). Two Dial Gauges 0.01 mm x 25 mm range for measuring strain and	

			consolidation. Note: Party has to mention buy back rates and should have clearly quote for instrument to be provided and buy back rates of old instrument with this department. Party has to bear all the transportation and other charges to carry an old instrument.	
26	Metacentric Height of Ship Model	1	SPECIFICATIONS : It should be a compact apparatus and requires minimal installation. The ship model should be floated on water, and should be tilted by moving a small weight at the level of the deck of the ship. To note down the tilt of the ship a plumb should be provided which records the tilt on a graduated arc of a circle. An arrangement should be made to load the war ship or cargo ship. It can be used to determine metacentric height of a war ship and cargo ship. With instruction manual.	
27	Pipe Friction Apparatus	1	SPECIFICATIONS : It should be a self-contained, compact set up which helps in studying the coefficient of friction in various types of notches. It consists of a supply tank with necessary piping. Supply from the pump is taken by flexible piping and water is delivered to the set up through a control valve and a Rotameter. Rotameter should be mounted on a frame for flow measurement. After measuring the water discharge at specific time intervals, water in main tank can be released into drain tank by opening the valve provided. Water is allowed to flow through pipes of varying diameters and of different materials, alternately and head loss due to friction is measured by using manometer. The set-up is capable to determine coefficient of friction of GI pipe :½" Cu pipe :½" Al pipe :½" MS Pipe : ½" PVC Pipe : ½" To plot relation between pressure loss &flow rates for a particular pipe diameter. With instruction manual.	
28	Manometers	1 set	SPECIFICATIONS : • 1. U-Tube Manometer: It should consist of a U – shaped transparent tube whose one end is attached to the gauge point and other end is open to the atmosphere with manometric liquid heavier than the water. It should be fitted with balanced compact MS frame with clear SS scale of 1mm LC. • 2. Differential U-Tube Manometer: A transparent U-Tube with manometric liquid heavier than the water for which the pressure difference can be measured. It should be fitted with balanced compact MS frame with clear SS scale of 1mm LC. • 3. Inverted U-Tube Manometer: It should consist of an inverted transparent U – Tube containing a liquid lighter than the liquid for which it is used to measure the differences of low pressures between two points where better accuracy is required. It should be fitted with balanced compact MS frame	

			with clear SS scale of 1mm LC. • 4. Micro Manometer: It should have one transparent chamber having larger cross sectional area in one limb and can be used to measure very small pressure differences with high precision. It should be fitted with balanced compact MS frame with clear SS scale of 1mm LC. • 5. Inclined Manometer: It should be capable to measure small pressures. It should be fitted with balanced compact MS frame with inclined clear SS scale of 1mm LC. The price should be quoted separately for each manometer.	
29	Francis Turbine Test Rigs (3.75 Kwatt) (Closed Circuit System)	1	SPECIFICATIONS : Net Head : 16 m. Discharge : 2000 LPM. Normal Speed : 1250 RPM. Power : 3.75 Kw (5 HP), Runner Diameter : 100 mm. Number of Vanes : 8. Brake Drum Dia. : 300 mm. Casing : Spiral shaped & made of close grained cast iron. Guide Vane Assembly : The vanes are operated by hand wheel through a screws & nut mechanism a guide ring & a system of links & levers. Runner : Of gun metal designed for efficient operation accurately machined & smoothly finished & securely keyed to the shaft. Ball Bearing : With single row angular contact type provided in the casing to take up the axial thrust & a couple row self aligning radial type provided in the outer pedestal. Draft Bend : Provided at the exit with a cylindrical transparent window fitted downstream of the runner for observation of flow & a conical draft tube of M.S. fabrication. Brake Arrangement : • Consists of a cast iron brake drum machined & polished, cooling water supply pipe from the turbine inlet, internal scoop, discharge pipe, spring balance rope brake & loading dead weights. • Centrifugal pump set suitable for the supply of water for the size of 4" x 4" to discharge 2000 LPM at a total head of 16 m. coupled to 15 HP, 1440/2880 RPM induction motor 3 phase 400/440 V. AC. supply • Flow measuring Unit : A 100 mm (4 ") Venturimeter/Orificmeter with double column differential manometer (Without Mercury) on a panel board to measure the difference of pressure. • M.S. reservoir with drain valve of ½ " size & a bend. • Starter, Switch, Digital speed indicator Pipe line with gate valve & foot valve etc. • Strong iron stand to support the unit. With instruction manual	
30	Digital Planimeter	1	• Display 6 to 8 digit pulse count with digital display • Precision- within 0.2% (Plus or minus)	

			• Reading in different units of pressure measurement • Easy conversion function of unit and scale • Hold memory function • Automatic shifting of unit to upper unit • Average value measurement • With variable Measuring Range • Measurement of an area with different lateral and longitudinal Scale • Power Supply adapter with Internal rechargeable batteries. Auto-power-off function for energy saving.	
31	Indian Satellites and satellite launching vehicles models	1 set	With different dimensions ranging from 0.5 m to 1.5 m. 1. Aryabhatta 2. Rohini 3. Bhaskara 4. INSAT 5. Oceansat 6. EDUSAT 7. Chandrayaan-1 8. Oceansat 9. RESOURCESAT-2 IRS P6 10. Megha-Tropiques 11. IRNSS 12. Mars Orbiter Mission (MOM) 13. Cartosat-2C 14. GSAT-18 15. SLV 16. ASLV 17. PSLV 18. GSLV-Mk II 19. GSLV-Mk-III 20. LMV3 21. RLV-TD Prices should be quoted for each model of the satellite	
32	Portable TDR soil moisture meter	1	SPECIFICATIONS : TDR300 of Spectrum Technologies USA Accurately measures soil moisture across full range of soil moisture conditions Measurement Principal :Time-domain measurement method Measurement Units: Per cent volumetric water content Measurement Range: 0% to saturation (typically around 50% V.W.C Resolution: 1.0% Accuracy: +/- 3.0% vwc with electrical conductivity < 2mS/cm Display: 16 character, 2 line LCD Power Source/Life: 4 AAA alkaline cell /Approximate 12 months Data Logger Memory: 3250 Page 3/16 measurement without GPS, 1350 with GPS Probes: 120 mm & 200 mm long Probe Rods Weight: 3 lbs. (1.4 kg) Dimension: 3.1" x 3" x 1" (7.8cm x 7.5cm x 2.5cm) Includes: Soil Moisture Meter with data logger; Pilot Hole Maker; 12-cm & 20-cmProbes; Software for data retrieval; USB interface cable and	

				carrying case. With instruction Manual	
33	Pressure Plate Apparatus	1		The equipment should be suitable for determination of pF curves in the range pF 2.0-4.2 (0.1-15 bar of suction). Also, these should be suitable for the calibration of soil moisture blocks or soil moisture measurement equipment. The standard set should contain amongst others: two extractors with ceramic plates (0.1MPa, 0.3MPa and1.5MPa, resp. 1, 3 and 15bar) and accessories, soil sample rings, a pressure control panel and a compressor. Several ceramic plates with soil samples can be placed in the extract or at the same time. High pressure control panel should be standard equipped with two manometers 0-2MPa and 0-0.4 MPa (resp. 0-20 bar and 0-4 bar). The included compressor (220V 50Hz) should be specifically designed for this purpose: maximum pressure 2.0MPa (20bar), built-in safety precautions, completely guarded and quiet. With instruction Manual.	
34	Plant Canopy Analyzer	1		• 2- PAR sensors with different sensors, with the range of PAR, UV and infra-red ranges with digital display. Output with data logger for storage of 1-2 gb with USB communication. With power supply, power storage and rechargeable batteries. With Line Sensor, Reference Sensor with 50 meter extension Cable and Carrying case and Tripod. • The sample sensor with 750 mm or more in length made up of 30 or more cells mounted in trough and covered by a diffuser. Able to measure the direct nad transmitted PAR in plant canopies. Direct measurement of leaf area index.	
35	Mini Disk Portable Tension Infiltrometer	1		Specifications : • Total Length : 32.7 cm • Diameter of Tube : 3.1 cm • Volume of water required to operate : 135 ml • Sintered stainless steel disc : 4.5 cm diameter, 3 mm thick • Length of water reservoir : 21.2 cm • Length of suction regulation tube : 10.2 cm • Length of mariotte tube : 28 cm • Suction range : 0.5 to 7 cm of suction	
36	Sap Flow Meter	1		Configured for Heat Ratio Method (HRM) principle-Consists of three probes 35 mm long. Additional Accessories : a) Heat Ratio Sensor Installation Kit includes: Small drill guide, 1.3 mm x 75 mm long Drill bits, pack of 10, Micro SD Card Shuttle, SFMIT Insertion Tool. b) Bark Depth Gauge c) Stem Increment Borer, 2T, 400mm length d) Enamelled Steel Diameter Tape, 5m long tape measures tree diameters up to 1.6m e) 1 vial of Methyl Orange f) Dremel Drill with 482 1/16" Collet g) Solar Panel Post Mount suits SP22 Solar	

			Panels h) 22 Watt solar panel with 4m cable i) Power distribution unit Features A) Power Management • Internal Lithium • Polymer Battery • Power On/Off Switch • Internal Voltage Regulation • Optical Isolation Lighting Protection B) Logging • Stand-Alone logging • MicroSD Expandable Memory • USB Connectivity • Wireless Data Transfer • IP68 Rated Water Proof Enclosure • Free Windows Utility Configuration Software • Standalone logging capability, 24-Bit integrated digital micro-processor, internal Lithium-Polymer battery; voltage regulator; MicroSD card Includes: 4GB MicroSD Card and enclosure mounting bracket; Windows configuration and communications software for downloading and manual operation of the instrument; User Manual. System configures for measurement at 2 points stem. Applications : • Low & Zero Sap Low Rates • Reserves Sap Flow Rates • Night Time Water Loss • Radial Sap Velocity Profiles • Sap Flow of Grapevines	
37	Clinometer Compass	1	Specifications : • Accuracy 1/4° • Graduation interval 0.5° • Scale: slope ±90°, slope % • Adjustable diopter • Dual saphire bearing • Liquid filled capsule for stable operation • Anodized light-alloy housing • Acrylic glass material • Tripod mount • Nylon carrying pouch with belt-loop	
Department of Process and Food Engineering				
38	Incubator cum mixer	1	Specifications : 1. Capacity – 500 kg pigion pea 2. Water tank-125 liter 3. Temperature – 35-55 °C 4. Mixing cycle : For first half an hour 5 min on and 10 min off. After half an hour 3 min on 30 min off. 5. Complete automatic temperature controller and automatic on-off switch to be provided. 6. Contact part should be made of standard steel.	

JUNAGADH AGRICULTURAL UNIVERSITY

TENDER DOCUMENT FOR THE PURCHASE OF LABORATORY EQUIPMENTS/INSTRUMENTS WITH ACESSORIES DURING THE YEAR 2016-17 BY

Principal & Dean, College of Agricultural Engineering & Technology
Junagadh Agricultural University
Junagadh- 362 001 (Gujarat)
Telephone No. 0285 2671018
Fax No. 0285 2671018

Bid reference :		
Period for downloading of tender documents.	:	Up to 28-01-2017
Physical submission of Tender Fee, EMD, other relevant documents as per check list of the tender as well as company printed literature/ catalogue and other necessary documents by RPAD/Speed Post	:	Up to 30-01-2017 before 17:00 hrs. In the office of the Principal, College of Agricultural Engineering & Technology, Junagadh Agricultural University, Junagadh 362 001, Gujarat.
Probable date for opening of primary Bid and verifying physically submitted documents	:	31/01/2017 (10.30 hrs.)
Probable date for opening of commercial bid	:	31/01/2017 (After 15.30 hrs.)

- *Tender fee Rs.1000/- in form of DD in favor of "Junagadh Agricultural University Fund A/c", payable at Junagadh, non refundable for entire tender*

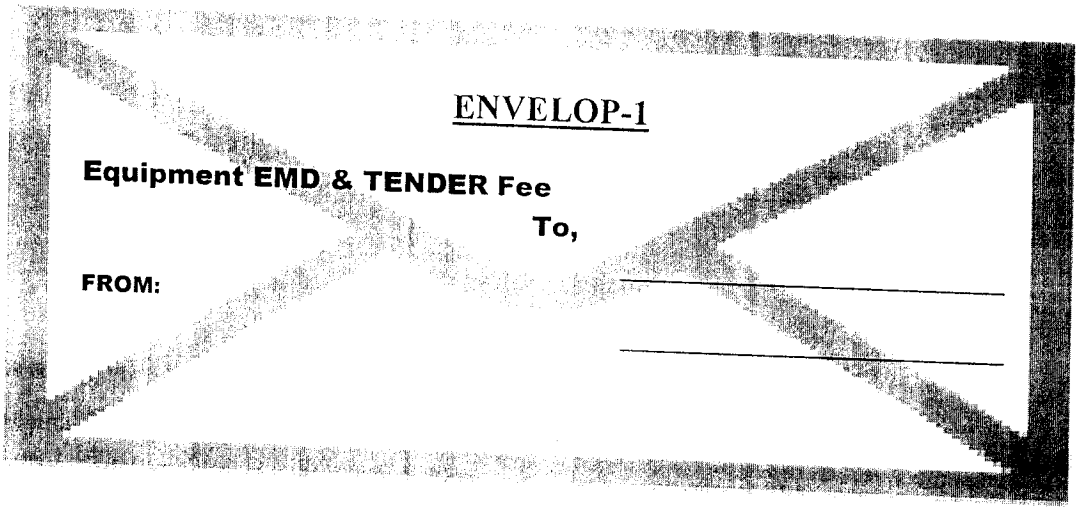
- *EMD for an amount of 3% of quoted price (Refundable) per equipment/instrument in the form of FDR have to be paid in favor of "Junagadh Agricultural University Fund A/c". A single FD sum-up amount of number of equipment/instrument EMD equivalent will also be accepted.*

Note: 1. Company Printed Literature / Catalogue are required may also be submit through concerned **email - rere@jau.in, fmp@jau.in , swe@jau.in** and **pfe@jau.in** on or before 30.01.2017.

Note: 2 THE MAIN ENVELOP CONTAINING THE FOLLOWING FOUR ENVELOPS should reach to the undersigned at given address on or before 30/01/2017 by RPAD / / Speed Post

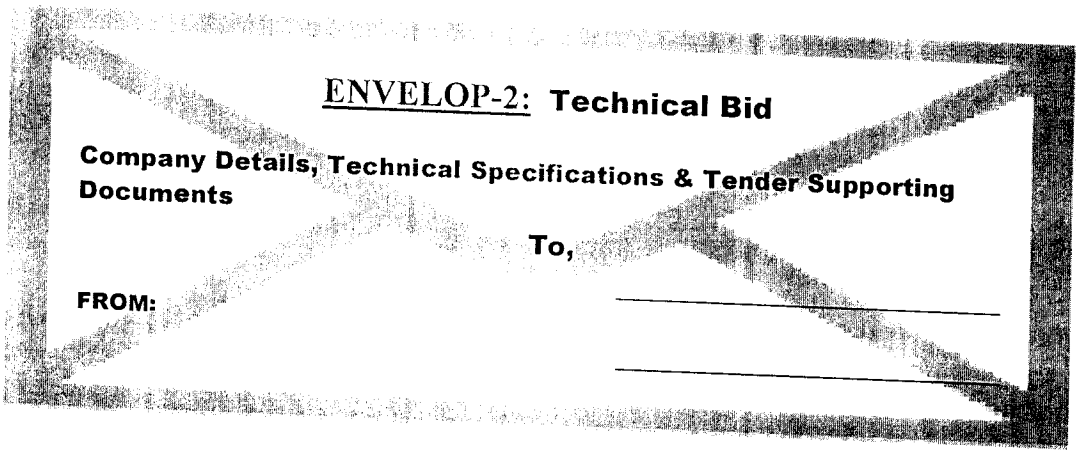
Envelop-1: Tender Fees and EMD (Details inside this document):

Original DD of Tender fee Rs. 1000/- and Original DD/FDR of EMD amount equivalent to 3% of quoted price of individual equipment/tender



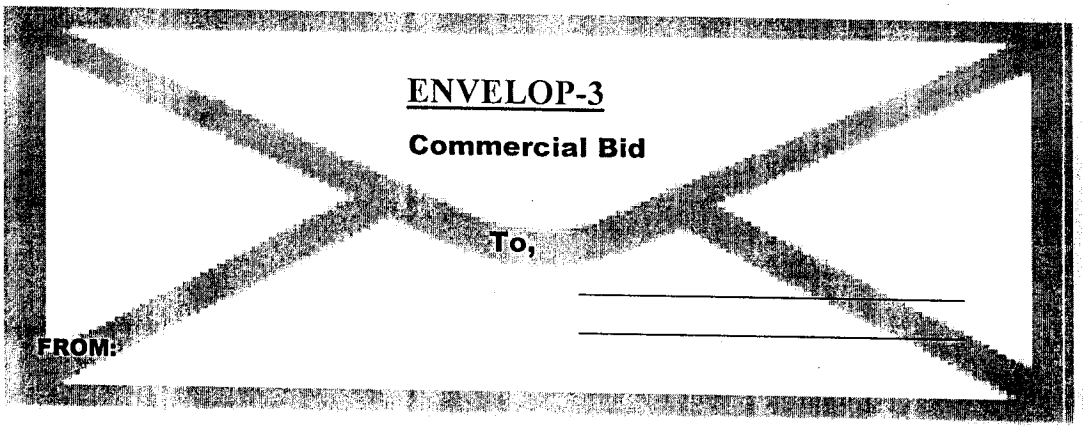
Envelop-2: Technical Bid:

Company detail & Tender Supporting Documents, documents consisting authority letter, ISO/ISI/CE certification, compliance statement related to tender specifications, Product literature, Country of origin of equipment, colour catalog, list of installation, etc. Equipment with specification to be purchased etc.

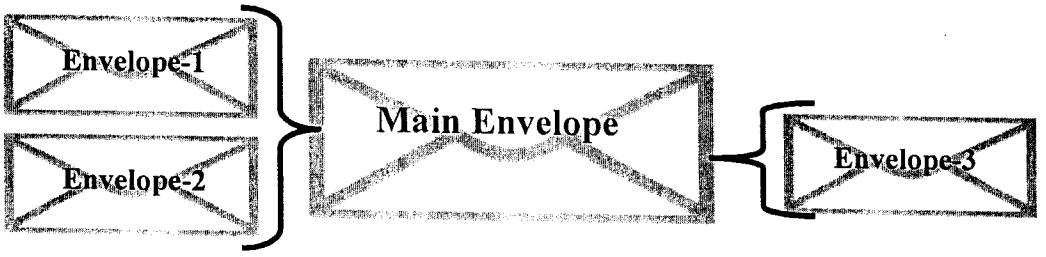


Envelop-3 : Commercial Bid

Please note that scan copy of documents mailed through email must tally with the physical submission of original / attested Xerox copy. The bidder will be entitled for immediate disqualification, if fails to submit the physical documents within time limit.



Keep envelop-1, envelop-2 and envelop-3 in main envelop and submit through RPAD or Speed post.



1. **Tender Fee Details: (Rs.1000/-)** DD in favor of "Junagadh Agricultural University Fund A/c ",SBI, code: 60218

   a. **Name and Address of Tenderer**

2. **Details of Demand Draft:**

Sr. No.	Particulars	Number	Date	Amount (Rs.)	Drawn on.... (Please mention Name of Bank)	Branch &Place
1	Demand Draft			1000/-		

3. **Format for EMD to be filled in the letter pad by the tenderer:**

EMD (*Equivalent amount of 3% of quoted rates per item*) as **FDR/DD** in favour of "Junagadh Agricultural University Fund A/c" payable at Junagadh.

Item No.	Name of Equipments	EMD of Rs.
A : Department of Renewable Energy Rural Engineering		
1	CO_2& O_2 Analyser with Data Logger	
2	Solar Hydrogen kit	
3	Fuel Cell Trainer	
4	Digital Gas Flow Meter	
5	Gas combustion analyzer	
6	Digital Energy Meter	
7	Solar PV Panels	
8	Bio-Diesel production Plant	
9	Biogas Control Unit	
10	Multi-Channel Data logger	
11	Air Temperature & Relative Humidity Sensor	
12	Light Sensor	
13	PAR Sensor	
14	CO_2 Gas Sensor	
15	Zeeman effects Apparatus	
16	Oscilloscope	
B : Department of Farm Machinery and Power		
17	Tractor Trailer	
18	Digital torque meter	
19	Ice Plant Tutor:-30 Kg	
20	Water Chilling Plant	

21	Window Air Conditioning Cycle Test Rig	
C : Department of Soil and Water Engineering		
22	Digital manometer	
23	Ground water level indicator	
24	Water stage recorder	
25	Direct Shear Apparatus (Buy back)	
26	Metacentric Height of Ship Model	
27	Pipe Friction Apparatus	
28	Manometers	
29	Francis Turbine Test Rigs (3.75 Kwatt) (Closed Circuit System)	
30	Digital Planimeter	
31	Indian Satellites and satellite launching vehicles models	
32	Portable TDR soil moisture meter	
33	Pressure Plate Apparatus	
34	Plant Canopy Analyzer	
35	Mini Disk Portable Tension Infiltrometer	
36	Sap Flow Meter	
37	Clinometer Compass	
D : Department of Process and Food Engineering		
38	Incubator cum mixer	

COMPANY DETAIL

1. Name of supplier / firm :

2. Complete postal address :

3. Telephone Number :

4. FAX Number (if any) :

5. E-mail address (if any) :

6. Sales Tax No. :

7. Registration No. :

8. 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)

TENDER SUPPORTING DOCUMENTS (CHECK LIST)

1	Tender Fee: (Demand draft of Rs. 1000/- in favour of "Junagadh Agricultural University Fund Account" drawn on STATE BANK OF INDIA, JUNAGADH BRANCH[CODE NO. 60218] towards the tender fee (Non-Refundable)	
2	EMD Fixed Deposit Receipt/Demand Draft of minimum 3% of quoted price of the equipment have to be paid in favour of "Junagadh Agricultural University Fund Account" drawn on STATE BANK OF INDIA, JUNAGADH BRANCH [CODE NO. 60218] towards the Earnest Money Deposit(Refundable).	
3	Vendor's Profile / Company details	
4	Registration copy	
5	IT Clearance	
6	Specification Supporting Documents with coloured catalog	
7	Minimum Technical Specification sheet	

Note: 1) All photocopied documents must be attested with seal and signature.
2) All documents photocopy attached in physically.

Note:

It is verified that all the certificates / permissions / documents are valid and current as on date and have not been withdrawn / cancelled by the issuing authority. It is further verified that the certificates are as per the format and it is clearly and distinctly understood by me / us that the tender is liable to be rejected if on scrutiny and of these certificates is found to be not as per the prescribed format.

I/We further undertake to produce on demand the original certificate / permission / document for verification at any stage during the processing of the tender.

DECLARATION

We solemnly declare that we have attached all the documents mentioned here above and mentioned in the tender. We also understand that non-compliance of any documents will be treated as non-respective tender and we will loose our claim to participate in the Tender Enquiry automatically and our tender will be liable to reject.

Name of the Firm:

Authorized Signature:

Name: Designation:

Seal of firm:

Terms & Conditions

1. **Tender fee of Rs. 1000/- (Non Refundable)** for exclusive tender be provided through DD in favour of " Junagadh Agricultural University Fund A/c "
2. The **EMD** (Earnest Money Deposited) for an equivalent amount 3 % (three percent) of quoted rates per item has to be paid in **form of FDR/DD only**, from any nationalized Bank of India or authorized IDBI, UTI, HDFC bank and ICICI bank, drawn in favour of "Junagadh Agricultural University Fund A/c" payable at Junagadh in the Envelop-1. Quotation without EMD will not be considered. In case of un-successful tenderers the Earnest Money deposit (EMD) will be released after finalization of the tender, while in case of successful tenderers / suppliers the Earnest Money so deposited (EMD) will be released after successful completion of supply.
3. Manufactures must submit **certificate of registration** as manufacturer in the envelop-2.
4. **Authorized dealer / distributor of a company have to submit** a copy of their dealership/ distributorship certificate validated by the company for the Current year for each equipment in envelop-2. In case of a chain of dealership (Area dealer sub dealer, local dealer), all the relevant Authorization certificates up to the end supplier has to be submitted of each equipment in envelop-2.
5. Each page of the tender documents should be signed by the authorized signatory of the firm. Unsigned quotation will be rejected.
6. **Type of currency in price bid Bid** : Currency Prices shall be quoted in **Indian Rupees only**.
7. **Mode of Selection:-** The Technical bids are to be opened at the first instance and evaluated by a committee. At the second stage, financial bid of only bidders who fulfill all the criteria of Technical bid will be opened.
8. The selection of Bid for purchasing the equipment, will be made solely on the basis of lowest rate. A bid will be declared L-1 on the basis of total lowest procurement value.
9. **All applicable Taxes like CST, VAT, etc shall be mentioned clearly and separately.**
10. In case of imported instruments, suppliers will have to clear the consignment; will have to pay custom duty clearance charges. **Custom duty exemption certificate (Registration with DSIR) only will be provided.**
11. **Selected bid party has to supply and install the equipment at the site** and the actual cost of transportation, up/down loading, installation, commissioning, etc. should be

mentioned separately & clearly otherwise it will be assumed that all above costs are inclusive (F.O.R should be Junagadh)

12. Should provide **1 year warranty** from the date of installation **OR** as per the **general condition given in the specification** of the equipment.
13. Compliance to carry out user acceptance test with minimum about **100 hours of run with a continuous run standard** and other tests that qualify the specifications offered
14. Vendor may quote for higher version (output) system however, base prices will be considered for given specifications only for comparison purpose.
15. **Vendors should mention:** (a) efficiency at full load for briquetting and pelletizing m/c (b) expected maximum O & M cost, Rs./hr (c) minimum duration for oil and other changeable accessories.
16. Vendors please specify separately cost if any **civil work** is required including Material and construction of suitable size foundation for installation of the system.
17. The manufacturers shall have to stick to their **quality standards** while supplying the goods. Goods supplied shall be rejected if found of inferior quality.
18. On scrutiny of tender documents, any queries raised by the committee have to be replied satisfactorily with all documentary proofs within 7 days.
19. Payment will be made as per JAU rules only after satisfactory installation and demonstration/testing/training.
20. The **list of customers and complete illustrated literature** should be enclosed with the tender form in the envelop-2.
21. Tenderer will have to **attach original colour catalog** of the each quoted product ensuring exact specifications in the envelop-2.
22. Post bid scrutiny will be done by instrument committee nominated by the university authority. Commercial rate of the disqualified parties will not be considered.
23. Vendor giving wrong information on specification will be **black listed for the period of 5 years.**
24. 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.
25. Being an education institution we are eligible for exemption of excise duty / custom duty. Hence, rates should be quoted keeping that in mind.
26. **Number of items to be purchased may be varied** according to requirement.
27. In the case of delayed supply of material within stipulated period, it will be at the discretion of the university to accept delivery with late delivery clause @1% per week

maximum to the extent of 10% of the ordered value for delayed supply.

28. **Security deposit @ 5 % of the work order** for the successful tenderer in the form of FDR has to be submitted to respective department for the period of 18 months before receiving the purchase order.
29. The instrument/equipment will be **purchased within the provision of fund** allocated/available.

    Rates Validity: up to 31st December, 2017.
30. Legal action may be initiated against such tenderer in case any of the information submitted by the tendrer is found to be false at any stage of the contract.
31. For any dispute, final decision of the Vice-Chancellor, JAU, Junagadh will bound to supplier/s.
32. University reserves the right to accept/reject any or all the tenders without assigning any reasons. No enquiry after submission of the quotation will be entertained.
33. For all legal purpose court jurisdiction will be Junagadh, Gujarat.
34. We agree to abide by the terms and conditions of supply mentioned in this tender document

Signature of Tenderer

(With Stamp, Name & Designation)

Authorized Signature:

Name: Designation: Seal of firm