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**TENDER NOTICE**



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**Tender Notice No. JNTUK/DIC/Equipment/2016/1 Dt: 19.08.2016**

**TENDER SCHEDULE**

 **GENERAL CONDITIONS:**

1. Please quote your lowest rates for each item described. The quotations shall reach the Registrar’s office **on or before 07.09.2016 by 4:30 PM.** Sealed covers shall be submitted for the items super scribing **“Tender No.”, “Date of opening”, and “Item Number(s)”.** The sealed covers shall be sent by the Registered Post or to be dropped in the sealed box provided in the office of the Registrar. The tender will be **opened on 8.09.2016 at 10:30 a.m.** by the undersigned/his nominee in the presence of the committee members and available tenderers’ or their representatives. The tenderers who submit the quotations along with a DD for  1,000 drawn in favor of **The Registrar, JNTUK Kakinada payable at Kakinada** are only eligible to participate in the tender.

1. **EMD:** The tender documents shall be submitted along with earnest money deposit (EMD) in the form of Demand Draft in favor of **The Registrar, JNTUK Kakinada payable at Kakinada**. The Demand Draft pertaining to the E.M.D. of unsuccessful party will be returned. The EMD for all the items is **Rs.10,000/-** (Rupees Ten Thousand only) expect for Items 9 & 10. The EMD for **Items 9 & 10** is **Rs.5,00,000/-** (Rupees Five lakh only).
2. **PRICES:** The price shall be quoted in **Indian Rupees only** and F.O.R. destination inclusive of taxes, packing & forwarding charges, freight and delivery chargers. Items on rate contract, if any together with the terms and conditions may please be furnished.
3. **PAYMENT:** 100% payment will be made within a reasonable time only after the receipt of all items in good condition and installation as per given specifications and after testing for satisfactory working and on receipt of the company’s invoice with all supporting vouchers such as copy of A.P. Sales Tax or VAT Registration certificate etc. **No advance will be paid in any case either in part or in full.**
4. JNTUK, Kakinada has been registered with DSIR, GOI and exempted from customs and central excise.
5. **ACCEPTANCE:** It is not binding on the university/ institution to accept the lowest of the tenders. The university/ institution reserves the right to place orders for individual items with different tenderers.
6. **SPECIFICATIONS:** Full specifications along with the description and MAKE shall be mentioned in the tender.
7. **Warranty/Guaranty:** Warranty/Guaranty period shall be mentioned by the tenderer.

 11. **DELIVERY:** The period of delivery at destination from date of placing orders is 6WEEKS.

12. **VALIDITY:** The quotations shall be valid for at least 180 days.

13. The Institution reserves the right to cancel the tender without assigning any reason.

14. This University being Government educational institution is exempted from payment of Central/State Excise Duty.

15. Since the college is Government institution whatever conditions are applicable to any Government institute shall be applicable even if not specified.

16. Any tender that is received after due date will not be accepted. The university is not responsible for any postal delay.

17. Attach the List of Major Customers along with the tender.

18. Any specific queries, communications, and references shall be made only to, The Registrar, JNTUK, Kakinada.

Sd/-

**Registrar**

 Encl: Equipment Details.

**Design Innovation Centre,**

**Jawaharlal Nehru Technological University Kakinada**

**EQUIPMENT DETAILS**

**For Hub-JNTUK**

**Item No.1. Computers – 10 numbers**

**Specifications:**

Processor - dual core 2.4 GHz+ (i5 series Intel processor)

RAM - 8 GB

Hard Drive - 512 GB, Graphics Card

Monitor - 24" widescreen LCD

Operating system - Windows 7 or more advanced version

**Item No 2. Printers – 2 numbers**

 **Specifications:**

Printing Type: Black and White

Printing Technology: Laser

Print Resolution: 600x600 DPI

Print Speed Black: 14 PPM

Paper Size: A4, A5, A6, B5, C5, DL

**Item No 3. Ceramic powders –Size 50microns, purity > 98%, 10kg of each of the following:**

Al2O3 - Alpha phase, SiC – Beta phase, Si3N4 – Beta phase, SiAlON

**Item No 4**. **Carbide powders - Size 50microns, purity > 98%, 10kg of each of the following:**

Titanium Carbide, Tungsten Carbide, Titanium Carbo nitride, Titanium Nitride, TiAlN, Aluminium Nitride(AlN)

**Item No 5**. **Metallic Powders:** **Size 50microns, purity > 98%, 5kg of each of the following:**

Cobalt, Nickel, Chromium, Molybdenum

**Item No 6**. **Additives** - **Size 50microns, purity > 98%, 1kg of each of the following:**

Magnesium Oxide, Yttrium Oxide

**Item No** 7**. Nano-size powders – Size 10nm, purity > 98%, 100gm of each of the following:**

Graphene, Multiwalled Carbon Nanotubes, Graphene oxide

**Item No 8. Dies:**

The dies shall be made as per the shapes shown below having the standard dimensions: However, the linear dimensions shall be 10% larger than the actual dimensions. 3 die sets of each configuration shall be supplied.

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**Item No 9. Cold Iso-static Press, De-binding and sintering Equipment**

**Cold Iso-static Press – 1 number**

 **Specifications:**

Shall be useful for high densification of the compact

Chamber Size – Dia 50mm x 150mm height

Operating pressure – 350MPa

Operating medium – Water

Decompression – Programmable steps from 350MPa

The vendor shall also supply the suitable moulds to produce the following:

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 **De-binding furnace – 1 number**

 **Specifications:**

Chamber size – 100 x 100 x 100 mm

Shall be available inert gas injection

Maximum Temperature - 800degree centigrade

 **Sintering furnace – 1 number**

 **Specifications:**

Chamber Size – Dia 50mm x 150 mm Height

Maximum Temperature – 1600 degree centigrade

Heating element – Graphite

Purging medium – Argon, Vacuum – Up to 10-3

**Item No 10. Hot iso-static press - 1 number**

 **Specifications:**

Chamber size –dia 50mm x 150 mm height

Temperature – 1400 degree centigrade

Working pressure – 100 Mpa

Heating element –Graphite

Pressuring medium – Argon

Programmable Decompression

Shall be suitable for getting full densification of ceramic and carbide compacts

**Satellite Institute 1 – ANU, Guntur**

**Item No 11. Humidity chamber – 1 number**

 **Specifications:**

Capacity - 220 litres

Temp and humidity micro processor based controller

Power 230V AC

Internal dimensions – 540 width x 520 depth x 760 height (in mm)

External dimensions – 760 width x 790 depth x 1330 height (in mm)

Inner body SS material

Outer body MS powder coated

Unit has Chamber circulating fan

Door provided with centre glass

Steam controlled by solenoid valve

Volume of steam space – 290 to 300 ccal

Temperature ranging from 0°C above ambient to 99.9°C without humidity and 10°C to 90°C with humidity.

 Should have microprocessor-controlled system of humidification/dehumidification

Humidity range should be ranging from 10% to 95% RH

Should come along with 2 trays

Should have 6 adjustable programs, with programming temperature ramp rate of 0°C to 3.2°C and should be able to do maximum of 40 segments

Time setting range 0 to 9999 hours and also infinity mode.

Should have delayed heating start and stop function.

Should have ventilation adjustable rate from 10% to 100%.

Should have provision of keyboard locking.

Chip cards should be provided to store programs.

Should have programming temperature ramps and program cycles facilities.

Accuracy of the instrument should be ± 0.2°C in time

Should have automatic/manual defrosting function

 RS 232 -interface port for printer or PC-communication in future

Should have acoustic and visual alarm of error state

Manual control of the suction flap and the air exhaust flap

Should have manual control of the suction flap and the air exhaust flap

Instrument should be CE certified

Warranty of 2 years should be provided

The instrument shall be upgradable to reach all USFDA norms as per 21CFR part-11 compliance.

**Item No 12**. **Incubator – 1 number**

**Specifications:**

Capacity should be more than 400 litres.

Dimensions 1010 width x 790 depth x 1910 height mm

Temperature range from - 10 °C to 99.9°C

Should come along with 2 trays

Should have 6 adjustable programs with programming temperature ramp rate of 0°C to 3.2°C and should be able to do maximum of 40 segments

Temperature accuracy should be 0.5°C at 10°C and at 37°C accuracy should be 0.2°C with space deviation.

Time setting range 0 to 9999 hours and also infinity mode.

Should have delayed heating start and stop function.

Should have ventilation adjustable rate from 10% to 100%.

Should have provision of keyboard locking.

Chip cards should be provided to store programs.

Should have programming temperature ramps and program cycles facilities.

Should have automatic/manual defrosting function

Time required to reach 10°C should be within 21 minutes

 RS 232 -interface port for printer or PC-communication in future

Should have acoustic and visual alarm of error state

Manual control of the suction flap and the air exhaust flap

Should have manual control of the suction flap and the air exhaust flap

Ecological cooling medium R134A shall be used.

Instrument should be CE certified

Warranty of 2 years should be provided

The instrument shall be upgradable to reach all USFDA norms as per 21CFR part-11 compliance.

**Item No 13**. **Vertical autoclave – 1 number**

**Specifications:**

Internal volume 75 ltr

Size in inches 370x 774mm

Power 230V AC

Should be automatic microprocessor based unit

Lid lock should be released by pedal push with Vertical opening

Should have 4 course of sterilization mode

3.0 kW electric heater

Effective internal volume: 69 Litres

 Internal Volume of the Chamber: 80 Litres

 Chamber internal material should be SUS304

 Should have following functions & Features

Liquid sterilizing

Heating

Warming

Last run memory

Built in steam exhaust bottle

Lid opening/closing detection Mechanism

Exhaust bottle detection mechanism

Leakage breaker

Safety device for locking the lid, water level detection during operating should be provided.

 Display should show working status parameters(Time and temperature)

Should be able to balance the temperature and pressure deviates during sterilization, fine exhausting automatically in order to adjust the chamber condition.

Temperature range: For sterilizing 105-135ºC,for heating 45 -104ºC and for warming 45 - 95ºC.

Rapid air cooling function (vessel-cooling fan) for lowering the temperature

 rapidly should be provided.

Operating pressure: 0.26Mpa & Analog display range should be 0 -0.4MPa

Display: Digital display range should be 1min to 99hours

Safety Device: Water level sensor, current leakage breaker, lid interlock, over heat

 & pressure Prevention, open temperature sensor detection & safety valve.

**Item No 14. High Temperature Oven**

**Specifications:**

Capacity - 100 to 120 litres

Working dimension should be 760(W) x 640(D) x 860(H) in mm

Temperature ranging from 10°C above ambient to 300°C

Should come along with 2 trays

Should have 3 adjustable programs

Temperature accuracy according to DIN 12 880 should be 0.4°C with time variation and 1°C with space deviation

Time range 99 hours 59 minutes

 RS 232 -interface port for printer or PC-communication in future

Should have delayed heating start and stop function

Should have acoustic and visual alarm of error state

Manual control of the suction flap and the air exhaust flap

Adjustable ventilation rate 50 - 100 %

Should have manual control of the suction flap and the air exhaust flap

Instrument should be CE certified

Warranty of 2 years should be provided

The instrument shall be upgradable to reach all USFDA norms as per 21CFR part-11 compliance.

**For Satellite Institute 2 – IIIT, Nuzivid**

**Item No 15. Wire bonding machine**

 **Bonding Methods:**

Wedge bonding by both angle-feed wedge bonding and vertical-feed Wedge bonding.

Micro Manipulator, Micro scope, Work holder (Heated work holder with capability of temperature variation from ambient to 200 oC for substrates of size range 0.5” x 0.5” or lower to 1.0” x 1.0” or higher.), bonder installation kit Set of bonding Tools, Two spools of bonding wires, each of Aluminum-Silicon alloy and Gold, Tool kit for maintenance (if not included in the installation kit)

 **Machine Specifications:**

Machine controls: Automatic microprocessor controlled programmable machine for selection of ultrasonic power, motor motions and machine logics.

Memory: 256 KB RAM, with battery back-up

Ultrasonics: Built-in 8 bit, 4 Watts (Ultrasonic Positioning utility)

Z Tool Range: 0.5625 inches minimum with Z encoder resolution of 0.002 inch, adjustable bond force range of 10 to 250 gms,

Transducer: ½ Wave, 63 KHz,

Conventional tool length & Deep Access tool length: 0.750 inch & 0.750 inch

Micromanipulator: Dual counterbalanced, Single lever, 8:1 ratio of mechanical advantage

Wire spool mount: ½ inch with ball bearing roller

Built-in radiant tool heat, LCD with 4 lines and 40 character display with a selector switch.

**Item No 16. Dicing saw**

 **Specifications**

Length of Y-table travel, Inches (cm): 9.5-9.75 (<25cm)

Length of X-table travel, Inches (cm): 5-5.25 (13cm)

Motorized Y Table: Standard Feature

Z-Spindle Standard Feature

Ammeter Cutting Pressure Indicator: Standard Feature

Spindle Arbor Size, Inches (mm): 0.45-0.5 (<12.7mm)

Standard Blade Sizes (inches od): 3, 4, 5, 6

Maximum Cutting Torque, 1(lowest) to 5(highest): 5

Maximum Blade Speed (RPM): 6,000

Footprint – length x depth, inches (cm): 27 x 25 (68cm x 63cm)

Height, Inches (cm): 21 (53cm)

**Item No 17. Spin coater**

 **Specifications**

The spin coater should be contain microcontroller/ microprocessor to achieve nearly unheard of flexibility, allows operator interaction in real-time during the process execution, including pausing time, stopping and continuing on from that point.

Process controller should be capable of storing and automatically running process recipes consisting of run time and acceleration rate, though it can also be run manually. (Maximum programmable cycle preferably).

Touch panel software control.

Programmable step time 1- 1000s

Maximum spin speed 4000-10000 rpm.

Maximum acceleration 2000-6000 rpm/s

Digital vacuum gauge and automatic vacuum control.

The system should be capable to hold the 2-6 inches wafers.

The housing for this system should be made from a solid co-polymer blend, which is able to resist solvents and strong acids and bases

The closed bowl design must be coupled with the precision of the process controller, allows most coating materials to dry in a quiescent state, increasing uniformity and minimizing particle contamination.

The upper plenum closes inside the base should be to provide an overlapping seal, and the inside of the lid has a special gutter to channel fluid to the rear of the system to discourage chemicals from dripping accidentally onto the substrate.

The system should have 45-60mm diameter vacuum chuck and one fragment adapter standard covering 10 mm through 150 mm SEMI wafers

The system motor and control electronics should be protected from chemicals exposure

The spin coater should provide the process chamber with Nitrogen purge and has been proven to be particle-free on a sub-micron level during field testing.

The system's top should be made from clear visible panel

Accessories: Should be provided with at least 10 Nos. of cleaning solution bottles each carrying 1 liters volume of solution

**For Satellite Institute 3 – IIIT, RK valley**

**Item No 18. Briquetting machine**

 **Specifications:**

Briquette diameter: 30-100 mm in steps of 5 mm

Briquette length: 50mm - 400mm in steps of 10 mm

Production capacity: 500-1000 kg/hr

Shape of Briquette: Cylindrical

Power required: 20-50 HP

Raw material in feed size: from Granulated size to 10 mm size

Foundation requirement: Yes/No

Moisture content in finished Briquette: 1-5%

Raw materials: Agriculture residues like Sugarcane bagasse, Groundnut shell, Saw dust, Wood chips, Coconut shell, Palm fiber, Palm shell, Sunflower stalk, Wheat straw, Rice straw, Corn stalk, Rice husk and Forest residues

**Item No 19. Pellet machine**

 **Specifications:**

Pellet size: 2-20 mm diameter in steps of 2 mm

Shape of Pellet: Cylindrical Production output: 100-300 kg/hr

Power required: 10-30 HP

Raw materials: Soft wood, Fire/Fuel wood, Charcoal, Agricultural residues like Sawdust, Rice husk, Wheat straw, Rice straw, Corn stalk, Groundnut shell, Coconut shell, Maize straw, Palm fiber, Palm shell, Sunflower stalk, wood chips, Sugarcane bagasse, Ground nut shell and Forest residues

**Item No 20. Wood chipper**

 **Specifications**

Output capacity: 1-2 tonn/hr

Output production size: 1 to 10 mm in steps of 1 mm

Drive motor: 20-25 HP & 1500 RPM

In feed material: fire wood logs up to 10 inch diameter and other agricultural residues

**Item No 21. Mechanical Workbenches and Tools – 2 number**

 **Specifications:**

Workbenches: 6x3x3 ft (LxWxH), quantity: 2 in number, for one bench 2 vices and other bench no vices, one shelve at each corner for each bench for accommodating tools

Mechanical tool kit: Hammers, Mallets, Wrenches, Snips, Hacksaws, Chisels, Files, Drills, Taps, Handsaws, Planes, Screwdrivers, Wood chisels, Pliers, Punches, Steel rule, Tape, Simple Calipers, Vernier Caliper, Micrometer, Try squares, Surface plate, Depth gage, C-Clamps, Portable electric Drilling machine, Bench grinder

**Item No 22. Bomb Calorimeter**

 **Specifications:**

To measure Calorific value of Bio mass

Type: Constant volume calorimeter

Temperature resolution: 0.001ºC

Experiment duration: 10 to 15 min

Temperature indicator: Microprocessor based Digital Temperature Indicator with Built-in Timer with Computer Interface and software

Automatic: bomb firing

Calculations

Data storage: through computer

**Item No 23. Ash and volatile matter tester**

 **Specifications:**

**Temperature control range:** room temperature=1000 ℃

**Temperature control precision:** ±2.5℃

**Temperature resolution:** 1℃

M**ax. Power:** 3.5kW

**Furnace dimension:** 298\*203\*121 mm

**Item No 24. Carbon residue tester**

 **Specifications**

Digital displays

Heating power: 300W, 600W, 1000W

Accuracy: ±5

Temperature Control Range: room temperature to 520 oC

**Item No 25. Desktop Computers – 2 Number**

 **Specifications**

Processor - dual core 2.4 GHz+ (i5 series Intel processor)

RAM - 8 GB

Hard Drive - 512 GB

Graphics Card

Monitor - 24" widescreen LCD

Operating System - Windows 7

**Note:** The vendors shall deliver the equipment up to lab at the respective institutes. Payment shall be made by JNTUK upon receiving the satisfactory report of installation and commissioning of the equipment by the corresponding institute.

Sd/-

**Registrar**