

**UGC Centre of Excellence of Application of Nanomaterials,
Nanoparticles & Nanocomposites (Focus Area: Biomedical Sciences)
PANJAB UNIVERSITY, SECTOR-14, CHANDIGARH**

TENDER DOCUMENT FOR THE PURCHASE OF

- 1. Dynamic Light Scattering (DLS) Nano-series for particle size & zeta potential**
- 2. Liquid Chromatography (LC) with requisite detectors & accessories**



Tender notice No.	: 2024/UGC Nano dated 19th April 2017
Last Date and Time for receipt of Tender	: Wednesday, 10 th May 2017 up to 5:00 pm
Date of opening of Technical bids in the department	: Monday, 15 th May 2017
Date of opening of the Price bids in the department	: Friday, 19 th May, 2017
Name of address of the Address of the Person issuing tender	: Prof Bhupinder Singh Bhoop Coordinator, UGC Centre of Excellence of Application of Nanomaterials, Nanoparticles & Nanocomposites, Panjab University, Chandigarh-160014 ugcnanoappli@pu.ac.in

Tender Fee of Rs. 1,000/- for each equipment item; is to be submitted along with the Tender in the form of a demand draft, payable at Chandigarh in favour of "The Registrar, Panjab University, Chandigarh"

❖ UGC Centre of Excellence of Application of Nanomaterials, Nanoparticles &

Nanocomposites, Panjab University, Chandigarh is interested in the procurement, installation and commissioning of the equipments as per the following technical specifications:

Sr. No.	Equipment	Annexure
1	Dynamic Light Scattering (DLS) Nano-series for particle size & zeta potential	Annexure 1
2	Liquid Chromatography (LC) with requisite detectors & accessories	Annexure 2

- ❖ Performa Invoice for each equipment item i.e., Technical bid & Financial/Price bid is invited from the interested Principals/manufacturers/ authorized agents for supply of the same. The bids, in duplicate should be submitted in the name of Coordinator, UGC Centre of Excellence of Application of Nanomaterials, Nanoparticles & Nanocomposites, Panjab University, Chandigarh -160014.

PROCEDURE FOR SUBMISSION OF BIDS:

- There will be **Two bids system** for this Tender: *Technical bid* and *Price bid*
- The Technical Bid of the Tender should be covered in one sealed cover superscribing the words "*Technical Bid*". The EMD should be attached with the Technical bid.
- Likewise, the Price Bid should also be covered in a **separate** sealed cover superscribing the words "*Price Bid*".
- **The two documents viz., *Technical bid* and *Price bid* covers prepared as above should be enclosed in a single sealed cover marked as under:**
 - I. Tender for the supply of:
 - **Dynamic Light Scattering (DLS) Nano-series for particle size & zeta potential**
 - **Liquid Chromatography (LC) with requisite detectors & accessories**
 - II. Due on Wednesday, 10th May 2017 up to 5:00 pm (last date for submission of tender)
 - III. Name & Address of the Tenderer _____
 - IV. **The Compliance sheet and equipment user list (esp. in the region) should be attached alongwith**

***Note:** Price should not be indicated in the Technical bid. Else, the Tender will be rejected

The last date of receipt of the offer and latest hour in the Centre is Wednesday, 10th May 2017 up to 5:00 pm.

- (a) The Technical bid shall be opened at 3.00 p.m. on Monday, 15th May 2017. The date and the time for opening of the Price/Financial Bids shall be the 3.00 p.m. on Friday, 19th May, 2017. In case the date of opening of the bids fall on the day which is declared public holiday, these shall be opened on the following day at the same time.
- (b) Only manufacturers, or their sole authorized distributors/sole agents are entitled to submit the Performa Invoice from the Principals. Else the tender shall not be considered. All offers other than those from the manufacturers should be supported by an authority letter from the manufacturers authorizing the firm to tender on their behalf. Certificate or a Photostat copy thereof to the effect that you are the manufacturer of the equipment,' authorized sole distributor or sole agent for manufacturer on whose behalf you are quoting, must be included in the documents.
- (c) The tenderer must be a manufacturer or his authorized agent (specifically against this tender for the subject goods) and should have successfully executed contracts for similar and/or identical goods at least in the past three years prior to the date of tender opening.
- (d) The detailed technical specifications of the listed equipment items are given in Annexure 1 and Annexure 2, respectively.
- (e) Technical specifications are intended to be descriptive and not restrictive. The bidder may substitute alternative standards in its bids, provided they are demonstrated to be equivalent or superior substitutes.
- (f) Clarifications, if any, could be sought from the Coordinator, UGC Centre of Excellence of Application of Nanomaterials, Nanoparticles & Nanocomposites (Biomedical Sciences), Panjab University, Chandigarh, in writing, within the period before the stipulated last date of receipt of the tender.

OTHER INSTRUCTIONS:

1. A person signing the tender form or any other document forming part of the contract on behalf of another shall be deemed to warranty that he has authority to bid such tenders and if, on enquiry, it appears that the person so signing had no authority to do so, the purchaser may without prejudice to other civil and criminal remedies against the contract, hold the signatory liable for all the costs and damages, and would forfeit the Earnest Money.
2. The bids prepared by the tenderer including all correspondence and documents relating to the bids, shall be written in English language.
3. The contract for the supply of the items is non-transferable.
4. Tender/Offer should be typewritten. Else, the same will be rejected.
5. Each page of the tender document should be signed by the authorized signatory.
6. Each offer should be complete in all respects.
7. Telegraphic/electronic/conditional offers will not be accepted.
 - i. Rates and Service charges should not be quoted in the Technical bid.
 - ii. All pages of the Technical Bid/Price Bid shall be page-numbered. In case of duplicate copies, all the copies shall be page-numbered separately.
8. Tenders/Performa Invoices not accompanied by detailed information, as required, are liable to be rejected.

TERMS AND CONDITIONS:

1. **OPENING OF BIDS:** Technical bids will be opened by the Committee after the closing date and studied. The Tenderers are invited for presentation and clarifications, if needed. Financial bids of the Tenderers complying with the prescribed Technical specifications will be opened by the Committee. Tenderers or their authorized agents may be present if they so desire during opening of the Tenders. The Tendering company should depute the person who is qualified for technical knowledge and be present at the time of opening of the technical bids.
2. **REJECTION OF BIDS:** The Committee reserves the right to reject any or all offers without assigning any reason.

3. EARNEST MONEY DEPOSIT (EMD):

- a) The tender must be accompanied with Earnest Money as detailed below in a lump sum amount in the form of Demand Draft valid for one year on a scheduled bank/term deposit receipt, valid for a period of one year from any scheduled bank, in the name of the Coordinator, UGC Centre of Excellence of Application of Nanomaterials, Nanoparticles & Nanocomposites, Panjab University, Chandigarh. Earnest Money in any other form will not be accepted. Amount of EMD will depend upon the F.O.R. cost of equipment as follows:

Amount Range	EMD (for each item)
Up to Rs. 20.00 Lacs	Rs. 40,000/-
Between Rs. 20.00 Lacs to Rs. 30.00 Lacs	Rs. 60,000/-
Between Rs. 30.00 Lacs to Rs. 40.00 Lacs	Rs. 80,000/-

- b) Bids not accompanied by Earnest Money as stated above or less than the amount stipulated above shall be summarily rejected.
- c) Earnest Money/security deposit/any other sums of the tenderers lying with the University in connection with any other tender/case will not be considered against this tender.
- d) The University would return the EMD mentioned to the successful tendering firm after the expiry of guarantee/warranty period.
- e) The University does not pledge itself to accept the lowest tender, and reserves to itself the right of acceptance of the whole or a part of the tender, or portion of the quantity offered, and the tenderers shall be required to supply the same at the rate quoted. The University reserves to itself the right to accept or reject a part or all the tenders without assigning any reason thereof.

4. GUARANTEE / WARRANTY & AMC/CMC:

- (a) Guarantee/warranty shall be for 24 months after installation, and 36 months of free service to be provided after the warranty period.
- (b) In addition to quoting for the equipment, tenderers must quote the charges for Annual Maintenance Contract (AMC) for a period of 2 years for maintaining the equipment at this University after the period of warranty/guarantee. During the service contract period, the firm shall provide four preventive maintenance visits besides attending to all emergency and break-down calls. The service contract charges should be quoted for labour cost only and should not include the cost of any replacement parts/components that may be needing replacement. During the service contract period, replacement of parts/components that may be needing replacement shall be made available by the firm to the Institute at its expense. The charges shall be paid to the firm in quarterly installments after satisfactory service.

- (c) In addition to quoting the charges for the AMC, the firm must also quote the charges for Comprehensive Maintenance Contract (CMC) on annual basis for a period of 5 years after the completion of service period of guarantee/warranty. The CMC charges should be quoted for labour cost as well as cost of any replacement parts / components that may be required for keeping the equipment functional.
- (d) Tenders not containing service contract charges shall be considered incomplete and shall be rejected.
- (e) The tenderer must give a list of institutions/universities/research labs in India, where their quoted equipment has been installed. The University reserves the right to inspect such institutions/labs and see actual performance of such equipment. The Centre may ask for demonstration of the equipment in the Centre at the time of technical evaluation.

5. CONVERSION TO SINGLE CURRENCY:

The instrument and all its accessories/spare parts quoted in foreign currency will be converted into Indian Currency at the exchange rate applicable on the day of opening of the financial bids for comparison purposes. Any change in conversions rates, excise duty taxes etc. will be taken care of by the tenderer.

6. MERGER / ACQUISITION OF FOREIGN PRINCIPAL:

In case of merger of Foreign Principal with another Firm or acquisition of Foreign Principals by another firm, it shall be obligatory for the New Entity so formed after the merger or the Acquiring Firm, as the case may be, to take over all the duties and obligations / liabilities of the Foreign Principals and the New Entity / Acquiring Firm would *ipso facto* become liable for all acts of commission or omission on the part of original Foreign Principals.

7. CHANGE OF INDIAN AGENT:

In case the Foreign Principal changes the Indian Agent, then it shall be obligatory for the Foreign Principal to automatically transfer all the duties and obligations to the new Indian Agent, failing which the Foreign Principal would *ipso facto* become liable for all acts of commission or omission on the part of new Indian Agent.

8. PAYMENT TERMS:

FOB value shall be paid through irrevocable Letter of Credit/Wire transfer established in favour of the foreign supplier through State Bank of India, Panjab University, Chandigarh, on a bank in the supplier's country, on submission to the bank of the documents specified in the Letter of Credit including the following documents:

- a) Foreign supplier's certificate that the amounts shown in the invoice are correct in terms of the contract and that all the terms and conditions of the contract have been complied with.
- b) Foreign supplier's certificate confirming that the original documents have been dispatched to the port consignee in accordance with the contract and
- c) Any other document specified in the notification of award or the contract.

OR

The payment shall be released on the basis of a certificate by Coordinator, UGC Centre of Excellence of Application of Nanomaterials, Nanoparticles & Nanocomposites, Panjab University, Chandigarh, successful installation of the equipment.

9. CUSTOM CLEARANCE:

The equipment requiring procurement from abroad will be imported under the OGL scheme, for which tenderer will ensure before shipment takes place, that the equipment, in question, can be imported under the said scheme.

- a) The equipment will be got cleared from the Customs by the tenderer at their own cost, and demurrage if any will be borne by the tenderer.
- b) It will be the responsibility of the tenderer to pursue and claims with the customs authorities/Insurance company /cargo operators and transporters, as may arise, at any stage.
- c) The N.M.I.C. (Not Manufactured in India Certificate) and the CDEC (Custom Duty Exemption Certificate) will be provided by the University.

10. MODE OF DESPATCH AND DELIVERY OF EQUIPMENT:

The equipment with all its accessories should be dispatched by air to Delhi (INDIA) duly insured, freight and insurance charges pre-paid. The tenderer is required to undertake to deliver, install, and handover the equipment to UGC Centre of Excellence of Application of Nanomaterials, Nanoparticles & Nanocomposites, Panjab University, within the stipulated period.

11. SUPPLY, INSTALLATION AND COMMISSIONING OF THE EQUIPMENT:

- a) The supply, installation and commissioning of the equipment shall be as per the stated terms and conditions The scope of work includes the installation and satisfactory commissioning of the equipment by the firm and training of personnel.

- b) The company must install the equipment within a period of two months of the date of delivery of the equipment at UGC Centre of Excellence of Application of Nanomaterials, Nanoparticles & Nanocomposites, Panjab University, Chandigarh.
- c) The equipment and software should be installed and tested to the specifications free of cost.
- d) The Supplier will clearly mention the installation requirements on our part in the Technical bid. The installation of the equipment shall be completed and handed over within the time schedule given in the tender. This stipulated period should be strictly adhered to for implementation.

12. TRAINING OF PERSONNEL:

The successful tenderer will be required to undertake to provide at his cost technical training for personnel involved in the use of the equipment at site at University immediately after its installation. For this purpose, the company experts shall be required to operate and train the University personnel at site at University.

13. LEGAL JURISDICTION: Any dispute in this regard of any term of the offer and on the supply of equipment is subject to Chandigarh jurisdiction only.

14. DESCRIPTIVE LITERATURE: A set of specifications, description and illustrated literature of the equipment and related peripherals should accompany the Technical bid.

18. USER AND SERVICE MANUALS: A set of User's manuals and main instrument, attachments and related equipment (water chiller etc.) should be supplied with the equipment.

15. DEFECTIVE EQUIPMENT: If any of the equipment supplied by the tenderer is found to be substandard, refurbished, unmerchantable or not in accordance with the description/specification or otherwise faulty, the committee will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Tenderer with 18% interest if such payments for such equipment have already been made to him.

16. VALIDITY OF RATES: Rates quoted should be valid for at least *6 months* from the closing date of the tenders.

17. CONSISTENT PRICING: The rates quoted for the Equipment items by the supplier shall in no case exceed the lowest price at which the supplier of this Equipment of identical description made to any other person/organization/Institution during the above said period and should attach an undertaking in this regard.

ANNEXURE-1

Dynamic Light Scattering (DLS) Nano-series for Particle Size & Zeta Potential

Dynamic light scattering based particle size along with zeta potential measurement system is required for assessment of size and zeta potential of particles of nano-series and micro-scale with following specifications:

1. Particle size, zeta potential and molecular weight measurement capabilities
2. Operable on 20-35 °C and up to 90% humidity condition
3. 0-90 °C Temperature control range
4. At least 4mW standard laser with short warm-up time
5. System must use APD detector as a standard
6. Computer based software to control instrument
7. Easy to operate software with optional compliance to 21 CFR part 11 FDA regulation
8. Operable on 220-240 V and 50 Hz power supply
9. Onsite installation of the product including necessary accessories
10. Warranty of at least 2 years
11. Professional Workstation/Computer from Standard/ Reputed Manufacturer:
 - Processor : Intel core i5 or higher, embedded with Windows 7 Ultimate or higher
 - Monitor : LED 23"
 - Hard disk : Minimum 1 Terabyte, along with one additional portable HD ≥ 1 TB
 - RAM : Minimum 8 GB
 - Warranty : Minimum 3 years of manufacturer
 - UPS : Online APC/Emerson 2KVA, with >30 minutes of Back-up
 - DVD Writer, Wireless Keyboard, Mouse, Adapter cards, etc.

Particle size measurement:

1. Measurement principle: Dynamic light scattering
2. Size measuring range: 0.3 nm to 5µm
3. Minimum sample volume: Not more than 20µL
4. Measurement angle: At least 2 angle measurement (Back and Forward direction)
5. Minimum concentration: 10 mg/mL

Zeta Potential measurement:

1. Measurement principle: Phase analysis light scattering or similar state of art technology
2. Potential measuring range: -500 to +500 mV
3. Maximum sample concentration: 40 % w/v
4. Maximum sample conductivity: 200 mS/cm

Molecular weight:

1. Measurement principle: Light scattering
2. Measurement range: 1000 Dalton to 20×10^6 Dalton

Cuvettes: To be provided along with the main system

1. Particle size Cuvettes (100 nos.)
2. Glass Cuvette (1 no.)
3. Zeta Potential Cuvettes (12 nos.)

***OPTIONAL REQUIREMENTS:**

- Option for determination at solid surface like Thin films, etc.
- Green Laser wavelength (600-650 nm)
- High power laser, 30-50mW(500-550 nm)
- High temperature option for increasing upper temperature limit from 90° to 120°C.
- Auto-titrator
- Disposable zeta potential cuvettes, polystyrene cuvettes, glass cuvettes
- Single cuvette/cell compatible for both aqueous & non-aqueous samples
- Real time analysis tool for direct real-time counting, sizing, concentration measurement and visualization of nanoparticles(10-1000 nm) in liquid suspension limited by the Brownian motion of the particles, being measured using high sensitivity sCMOS camera with suitable software
- Professional/ Business Printer: HP Laserjet A4 with Automatic Document Feeder (ADF) B&W

ANNEXURE-2

Liquid Chromatography (LC) with Requisite Detectors & Accessories

High Performance Liquid Chromatography (HPLC) system for analysis of drug and drug-like compounds in chemical and biological samples with the following specifications:

- **Pump & Solvent delivery System:**

PUMP: Quaternary pump with construction capable of delivering precise volumes from 0.01 mL to 10 mL (or better), in increments of 0.01 mL. The pump should be capable of taking feed from four different reservoirs, allow low pressure mixing of four feeds in any proportion using precise and accurate proportioning valve and delivers non-pulsating flow with following specifications:

1. **Flow accuracy:** Equal or better than $\pm 1\%$ at 1 mL / min.
2. **Flow precision:** Equal or better than 0.075% RSD.
3. **Gradient Profiles:** Option of 11 predefined gradient curves or option of gradient mixing in any desirable order (First in first out) to ensure accuracy.
4. **Compressibility Const. Compensation:** Automatic, continuous, without manual intervention, to be included in analysis method
5. **Flow rate range:** 0.01 to 10ml/min. or better
6. **Flow composition accuracy:** $\pm 0.5\%$ or better at 1mL / min.
7. **Flow composition precision:** $\pm 0.15\%$ RSD at 1 mL / min.
8. **Degassing:** Integrated vacuum degassing for each of the 4 feed channels with internal volume of 1 mL or less per channel
9. **Pump:** The pumps should deliver flawlessly against pressure of 5000 psi or above (344.7 bar or above) with pressure fluctuations of less than 50 psi. Should be able to use variable particle size columns (like 2.5, 5, 10 μ etc.,)
10. **Dwell/Delay volume (Total system; inclusive of sample management delay):** not more than 650 μ L (including mixer)
11. **Band Spread Volume:** $<30\ \mu$ L to ensure better sensitivity and resolution at low conc.
12. **Pump seal wash:** Integrated, active and automatic
13. **Wet priming:** Automatic and software-assisted automated solvent purging and priming function.
14. **Pump display & control panel:** Integrated in the system or provided separately. Status display, control keys should be available with auto preparation of the system, tracing and error log display should be visible through both, system and software

- **Auto-sampler with sample cooling and heating:**

1. **Injection volume:** Full volume injection or variable volume injection of 0.1 to 100 μ L in increments of 0.1 μ L without any sample loss (option to increase up to 250 μ L)
2. **Sample processing:** No. of sample vials 100 ± 10 of 1.5/2.0 mL vials; multiple samples processed automatically or randomly as commanded. Capable of customized continuous analyses as per specified conditions for each sample. Capable of taking priority samples in the queue during automated run.
3. **Flow line rinse:** Flow line rinse capability both before and after sampling.
4. **Injection needle wash:** Programmable needle wash using fresh solvent between two consecutive injections.
5. **Sample carryover:** Less than 0.01%
6. **Sample delivery/Injection precision:** $< 0.5\%$ RSD or better at 10 μ L
7. **Linearity:** Coefficient of correlation equal to or better than 0.999 from injected volume of 1 to 100 μ L

8. **Sample compartment temperature Control:** Direct cooling for temperature setting from 4 to 40°C in 0.1°C increments
9. **Injection Accuracy:** $\pm 2 \mu\text{L}$
10. **Injected sample auto-addition and auto-dilution:** Software-assisted
11. **Advanced Features:** Priority Samples, Auto Standards, Auto Dilution & Auto addition, (For method development and validation purpose)
12. **User Training:** Certified HPLC operator and troubleshooting training to the user(s).

- **Column Compartment:**

Column oven to accommodate two number of 30 cm columns for uniform temperature distribution with quick feedback mechanism to maintain constant temperature level from 10°C below ambience (25°C) to 60°C in increments of 1°C and precision of $\pm 1^\circ\text{C}$. Six-position column switching facility.

Safety features (optional): Solvent leak sensor, temperature limit device and temperature use.

- **PDA Detector for HPLC (Photodiode Array Detector):**

1. Detector should have a wavelength range of 190-800 nm or higher with wavelength accuracy of $\pm 1 \text{ nm}$ and repeatability of $\pm 0.1 \text{ nm}$.
2. Resolution band width should be 1.2 nm per photodiode, with a total of 512 or more photo diodes, digital, and optical (3D mode).
3. Detector should have a low noise level of $1.0 \times 10^{-5} \text{ AU}$, or less, at 254 nm, 1.0 s, 30 s segments, data acquisition rate up to 50 Hz.
4. It should have a flow cell path-length of 10 mm-standard with a flow cell volume of 10 μL or less.
5. Detector should have a pre-aligned, deuterium lamp design for optimum sensitivity along with lamp warranty of minimum 1800 h. The life time should be optimized by the software to ensure same sensitivity through its life.
6. It should have provision to check and control peak purity using software.

- **System control:**

In-built system Control: Option of system control through clear display panel integrated in or provided with the system to control operation and time events and capable to display data independent of software-assisted PC control.

- **PC Software-assisted system control:**

Chromatographic Software: Net-enabled and validated software, capable of monitoring simultaneously up to four HPLC systems and data acquisition of up to 8 channels (i.e., two detectors of each HPLC system). Certification for CFR21 compliance, as effective, is required. It should allow auto-start-up, auto-shut-down, baseline stability, auto-validation, and auto-purge. Compatible with the latest Windows operating system in the market and the company shall assure free software upgrade for at least next 5 years from the date of commissioning. The software shall have capabilities in addition to standard features including:

Features for chromatogram comparison through subtraction, modern tools of data processing, customized report formats deliverable in other file formats, inclusion of internal or external standard for quantification, allowance of normalization and use normalized chromatogram for quantification, allowance of data transfer to MS-Word/Spread sheet/PDF, allowance of providing data in tables and graphs, allowance of audit-trail through auto-generated log files, Hard and soft copies of software operations, tools, functionalities, and capabilities for self-learning.

- Onsite installation of the product including necessary accessories
- Warranty of at least 2 years

• **Professional/Business Workstation/Computer from a Standard/ Reputed Manufacturer:**

- Processor : Intel core i7 or higher, embedded with Windows 8 or higher
 - Monitor : LED 23"
 - Hardisk : Minimum 1 Terabyte, along with one additional portable HD ≥ 1 Terabyte
 - RAM : Minimum 8 GB
 - Warranty : Minimum 3 years of manufacturer
 - UPS : Online APC/Emerson 2KVA, with >30 minutes of Back-up
 - DVD Writer, Wireless Keyboard, Mouse, etc.
- **Software to acquire and process data, and to control the HPLC system (Oracle/SQL database)**
- **Professional/ Business Printer: HP Laserjet A4 with Automatic Document Feeder (ADF) B&W**

OPTIONAL DETECTORS:

A. Fluorescent Detector with following specification:

1. **Light Source:** Xenon lamp
2. **Excitation Range:** 200 - 650 nm or higher
3. **Emission Range:** 210 - 750 nm or higher
4. **Spectral bandwidth:** 20 nm
5. **Wavelength Accuracy:** Equal or better than ± 3.0 nm
6. **Repeatability:** Equal or better than ± 0.25 nm
7. **Flow Cell Volume:** Less than 15 μ L
8. **Flow Cell input Temperature:** 4°C to 35 °C
9. **Cell Temperature Control:** 10°C Below ambience to 35°C

B. Dual/multi wavelength UV-Visible Detector

Band width	≤ 5 nm
Wavelength range	190-700 nm or better
Wavelength accuracy	± 1 nm
Wavelength precision	± 0.1 nm
Wavelength accuracy check	Automatic check at 4 wavelengths (UV & VIS) & wavelength correction
Detection	Ability to monitor absorbance at two user-selected wavelengths
Drift	Equal or less than 1×10^{-4} AU/Hour
Noise level	$\pm 0.5 \times 10^{-5}$ AU (single wavelength)
Wavelength range linearity	Equal or better than 2.5 AU (ASTM E578 method)
Flow cell volume	Less than 20 μ L, cell path length 10 mm
Self-aligning mechanism	In place for the light source and cell to allow alignment-free installation from the front