Guru Nanak Dev University, Amritsar

Online specifications for tender published in Time of India and Indian Express dated November 3, 2011

Tenders are invited for the purchase of the following equipments

Sr.	Equipments	Department Name & Address	Date of online Publication	Last date of tender after online Publication
1.	FTIR Spectrometer and Accessories	Head, Deptt. of Physics	Nov. 4, 2011	Nov. 25, 2011
2.	Spectroflourometer	Head, Deptt. of Pharmaceutical	Nov. 4, 2011	Nov. 25, 2011
3.	Ultra Performance Liquid Chromatography (UPLC)	Head, Deptt.of Botanical & Environmental Sciences	To be given later	
4.	Scanning Electron Microscope	Dean, Faculty of Life Science, Deptt. of Biotechnology	Nov. 4, 2011	Nov. 25, 2011
5.	Isothermal Titration Calorimeter	Head, Deptt. of Chemistry	Nov. 4, 2011	Nov. 25, 2011
6.	Gel Documentation System with Chemiluminiscence Detection	Head, Deptt.of Biotechnology	Nov. 4, 2011	Nov. 25, 2011
7.	Real Time PCR			

Terms & Conditions

1) Tender must be accompanied by earnest money @ **2%** of the quoted amount in the shape of demand draft in favour of "Registrar, Guru Nanak Dev University, Amritsar" and payable at Amritsar.
2) **Technical Bid & Financial Bids** should be quoted separately.
3) Tender should be submitted by post and describe on the envelop "Tender for the supply of <Equipment Name> and send to the concerned department.
4) You can submit more than one quotation separately for different models and makes.
5) University does not bind itself to accept the lowest tender and reserves the right to accept the whole or part of the tender on quality basis.
6) The rates should be FOR GNDU, Amritsar with insurance cover.
7) The taxes / custom duty if any should be quoted specifically.
8) One service manual and one operation manual.
9) Warranty: System must be quoted along with minimum three years comprehensive warranty

10) Original manufacturer should guarantee supply of original spares for adequate servicing of the instrument and provide support for upgradation of the instrument whenever asked for.
11) Imparting operational training by the service engineer at the time of installation, calibration, standardization. Three officials should be trained for complete working and maintenance
12) Spare of the instrument must be available for at least ten years
13) Detailed information about site preparation, if any, must be supplied three months before delivery of equipment
14) User list must be enclosed
15) Payment against delivery and installation
16) The system should be compable will third party accessories and should be upgradable.
17) Operation manual and circuit diagram should be provided alongwith the equipment.
18) The tenderer must provide a compliance statement vis-à-vis specifications in a “tabular form” clearly stating the compliance and giving justification, if any supported by technical literature with clear reference of page number, paragraph or lines. This statement must be signed, with the company seal, by the Tenderer for its authenticity and acceptance that any incorrect or ambiguous information found submitted will result in disqualification of the Tender.

1. FTIR Spectrometer and Accessories

Spectral Range	**8000 to 30 cm^{-1}**
Wave Number accuracy	0.02 cm^{-1}achievable or better
Resolution	0.6 cm^{-1} or better
Beam Splitter	**MID IR & FAR IR, 8000 to 30 cm^{-1}**
S/N Ratio	45000: 1 , P to P at 4 cm^{-1}resolution in one min time scan or better
Detectors	DLATGS/Room Temperature /DTGS

1. Suitable detectors & Beam splitters should also be given for a range of 30 cm^{-1} to 8000 cm^{-1}
2. Instrument should be fully software controlled including fully automated changeover of sources, detector s& beam splitters.
3. Beamspilitter changeover should be fully software controlled with motorized hardware, without any manual interruption.
4. Optics should be with high performance suitable coatings.
5. In future system should be upgradeable with TG-IR coupling, IR-Microscope coupling.
6. Automatic real-time Atmospheric Vapor Compensation
7. System software for complete data analysis for deconvolution and Krammers-Kronig relations etc. should be given free of cost with instrument.
8. Michelson interferometer (must be non mechanical bearing) for fast scanning, selfcompensating for dynamic alignment changes due to a tilt and shear, incorporating high reflectivity
9. Compatible branded PC, Laser Printer and online UPS with 30 min backup should also be provided with instrument.
10. Standard company made 15 ton Hydraulic Press, Agate Mortar Pestle, KBr(Spectroscopy grade) Die set, Magnetic Film sample holder, demountable liquid cell etc should also be given with instrument.
11. Printed catalogues & specification sheet along with tender Compliance Statement must be enclosed with the Offer.
12. Fully automated Software controlled minimum 05 position inbuilt validation wheel.
13. Nitrogen purging accessories should be provided with instrument.
14. Custom Clearance against Custom exemption certificate & transportation should be done by supplier & Instrument and all accessories should be given F.O.R GNDU Amirtsar.
15. Training on site by company engineers on complete FTIR system and accessories.
16. Minimum 2 years warranty should be given on complete system including accessories
17. All technical specification should comply as per printed technical literature, Documents & specifications.
18. Compliance Statement must be enclosed with the Offer.

OPTIONAL ACCESSORIES:

1. Diamond ATR
2. DRS
3. Speculer Reflection Accessory

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2. Spectrofluorometer (PC Controlled) Fluorescence Spectrophotometer

Sr. No.	Parameters		Description
1.	Light Source	:	150 watt ozone free Xenon Lamp.
2.	Measuring Wavelength	:	200–900 nm (Excitation and 200–900 nm Emission)
3.	Optical System	:	Monochromator with advanced grating
4.	Sensitivity	:	Raman Band of water with 10 nm band pass at 350 nm (Ex) and 397 nm (Em) S/N> 150
5.	Spectral Bandpass	:	variable / adjustable
6.`	Resolution	:	± 2 nm (Minimum)
7.	Wavelength accuracy	:	± 1.5 nm or better
8.	Wavelength Scan Speed	:	selectable
9.	Filter	:	System should comprise of software selectable emission filters
10.	Detector	:	Photomultiplier Detector with support for the range 200 – 900 nm / High Performance PMT.
11.	Power Compliance	:	230 Volts, 50Hz.
12.	Software	:	Compatible with Windows Vista, Windows XP, Windows 7 etc. Should have various data analysis facilities like arithmetic functions, smoothing, normalization and specific application programs should also be provided for quantitative wavelength scan, time scan, kinetic evaluations, GLP compliant.
13.	Cell	:	One pair of standard 10 mm quartz cell with PTFE lid – 10X10 mm path length.
14.	Cell Holder	:	Peltier controlled One and Four 10 mm cuvette holding capacity
15.	PC / Printer	:	Branded, to be supplied with the instrument with operating system on CD and Microsoft Office Pro.
16.	UPS	:	An instrument compatible UPS with 3 hour backup to be provided with the system.

3. Ultra Performance Liquid Chromatography (UPLC) :

Specifications will be put on the website shortly

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4. Scanning Electron Microscope

Accelerating Voltage : 500V-30kV (or better)

Electron Source : Thermionic Tungsten

Probe Current :

Stable high beam current for precision analysis upto 1pA - 2μA (or better)

Resolution :

10nm or better at 3kV in HV mode (SE detector)
4.5nm or better at 30kV in LV mode (BSE detector)
3.0nm or better at 30 kV HV (SE detector)
3.0nm or better at 30kV in extended vacuum (SE detector)

Magnification : 10x – 3, 00,000 (or better)

Stage Movement :

5 Axis (preferably Motorised stage) with movement facility for
X=100mm or higher; Y=100mm or higher; Z=50mm or higher
Tilt: 0-70^0, Rotation= 360^0 (continuous)

Vacuum System :

Turbo Molecular Pump based ultra clean and fast vacuum system with following essential vacuum modes

1. High vacuum mode for conducting specimens
2. Low vacuum mode with chamber pressure upto 270 Pascals or better for non conducting specimens
3. Extended vacuum mode for biological samples with chamber pressure upto 2000 Pascals or better.

Chamber Size : Large size with at least 8 accessory ports

Detectors :

1. Secondary Electron Detector for use in high vacuum mode
2. Secondary Electron Detector for Low Vacuum mode
3. Back scattered Electron Detector for use in high & low vacuum mode
4. SE and BSE detectors for extended vacuum mode
5. IR CCD Camera for Chamber viewing
6. Faraday cup and current meter for current measurement
7. Vacuum gauges to measure chamber and column pressure
8. Standard samples for verifying instrument resolution

System Control and Softwares :

Latest branded CPU with high speed processors, RAM etc. , with preloaded Operating system & programmes. 2 x 19-inch high end TFT flat display, joystick and Manual user interface with all supporting softwares. Software for image analysis. BMP, JPEG, TIFF file formats.

Essential Accessories :

- Online UPS (10kVA with minimum two hours backup)
- support kit
- specimen handling tool
- 20 spare Tungsten filaments
- Anti-vibration Table/ Platform
- Peltier Cooling Stage

Optionals :

1. High performance Energy Dispersive X-rays Analysis System with Liquid Nitrogen Free (Peltier cooled) Silicon Drift Detectors of area 10 mm^2 or more. Quantitative detection of wide range of elements with guaranteed detection of elements such as C, N, O etc.
   Detector Resolution: 133eV or better at MnK_a
   Interface between EDS and SEM and all necessary softwares
2. STEM- Dry and Wet STEM
3. Sputter Coater with gold target, carbon coater
4. Cathodoluminescence detector

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5. Isothermal Titration Calorimeter

1. Should be able to determine binding constants (in the range 10^2 to 10^9 M^{-1}), enthalpy and entropy values for the binding process.
2. Should have a temperature range of 2-80°C with temperature stability of ±0.005 °C throughout the range.
3. Should have a low response time and sensitivity <0.5 ncal.
4. Minimum detectable heat should be 0.1 µJ or less.
5. Should have a control unit, washing system and preferably having an auto-pipetting possibility.
6. Cell should be a fixed non-removable cell made of insert hastelloy material resistant to sulphur groups and reducing agents and should work in the pH range of 2-12.
7. Volume of the cell should be 200 µl or less.
8. Should be supplied by a computer unit, a colored laser printer, a UPS system with 2 hr battery backup.
9. Should have user-friendly software for instrument control, data acquisition and analysis and having a list of in-built binding models and possibility of having user-selectable models.

10. Should be supplied with a spare injection syringe, spare filling and cleaning syringes and other spares required to take care of the wear and tear of the equipment.

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6. Gel Documentation System

1. Quantitative multi mode system for Chemiluminescence/Etbr stained gels/protein gels
2. Peltier cooled camera with advanced CCD area, Two-stage thermoelectric module with air circulation with real time and integration time
3. True 16 bit (65536 grey levels) Pixel Depth with 3.5 orders of magnitude or better
4. Should have pixel corrections like dark frame, flat frame and distortion corrections
5. CCD chip of 3.0 Mpixel or above, affording up to 6.0 mega pixels and above with binning, smoothing functions with pixel size of 15µm or less
6. Camera device with wide angle lens f number of 0.95 or lower. Zoom lens should be with f number 1.2 or more
7. Exposure should be automatic and manual inclusive of normal, incremental and repetitive program. Exposure time preferably from 1 second to 24 hrs or better
8. Peltier based air cooled system which cools upto -20^{o}C or better
9. In built Trans UV/White and Epi White functions.
10. System should analyze sample size of 20 x 14 cm or better.
11. Analysis and capture software:.

Optional:

- Upgradation to Epi Red, Epi Green, Epi Blue (Fluorescence & RGB) and NIR applications
- **Data Collection and processing unit:** Intel i5 processor with 3 GHz or higher Pentium processor, 4 GB RAM, DVD/Blu Ray Reader/Writer, 500 GB or higher HDD, 1.44 MB FDD, 19" TFT color monitor , WIN 7 operating system, Multimedia Kit along with UPS, 1 GB Graphics Card, External 500 GB HDD and Laser Color Printer
- Cooling System (1.5 Ton) for maintenance of temperature
- Compatible online UPS System with atleast 30 mins back-up
- Suitable sturdy table to accommodate the instrument and related accessories

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7. REAL- TIME PCR

Specifications: Hardware:

1. The system should use routinely available standard 96-well plate without the need of any specialized plates.
2. The block should preferably be alloy/ silver.
3. System should use a fast thermal peltier based standard block with provision of Fast-PCR (within 30-40 min.) as well as standard PCR run in the same block.
4. The normalization of reaction due to non-PCR related fluctuations should be possible by using any calibrated dye.
5. The excitation source should preferably be LED/Laser and the detection system should be photodiode/PMT.
6. The system should come along with the verification plate to demonstrate the specificity/precision of the instrument.
7. The system should have flexibility to run multi user samples with specific annealing temperature in a single run.
8. The system should support minimum reaction volume of 10.0µl.
9. The system should have peak block ramp rate for heating as well as cooling exceeding 4.5oC/second or more.
10. The system should have temperature range of 4^{o}C - 95^{o}C to facilitate incubation of samples at low temperature.
11. The system should preferably have Touch Screen LCD feature to avoid dependency on computer for operation. However, it should be possible to use computer for system control, operation, analysis, net-working of multiple system and a USB port for data export to Power point, Excel or JPEG file formats.
12. Preferably laptop to be provided with the system with licensed software.

Software:

1. System should be supplied with licensed probe/primer design software.
2. The instrument should have software that can analyze multiple perspectives in the Multiple Plots view, with side by side views of all data aspects including the amplification plots, standard curve, multi-component data plots, and raw data.
3. Application software should include licensed High Resolution Melting Curve Analysis software and support applications including absolute quantitation, Relative quantitation, multiplex-PCR, allelic discrimination (SNP), melt curve analysis as well as pathogen detection and plus/minus assay using internal positive control. The vendor should have reagents for the HRM applications.

Supporting Chemistries and Applications:

1. Open system to accommodate all the Real Time PCR chemistry like TaqMan, SYBR Green, HybProbe, Molecular Beacons etc.

2. The system should be able to detect more than 6 colors and should be capable of doing multiplexing for more than three colors.

3. The system should be open system with flexibility to use standard 96 well plates, individual tubes and 8-tube strips.

4. The instrument should have 9 logs of linear dynamic range.

5. System should be standardized for Taqman and SYBR Green Chemistry with pre-validated and functionally tested Taqman Assays for different applications like Gene Expression, SNP Genotyping, MicroRNA Expression, Viral Load analysis, Gene detection and Translocation Analysis.

Other Conditions:

1. The quoted system must have full license for PCR process. A copy of the license may be attached to the offer.

Accessories:

Cooling Device: AC window type capacity 2 ton with stabilizer.

Minimum 3 KVA online UPS for the Real Time PCR.