



National Institute of Technology, Rourkela-769008, Odisha
Department of Physics and Astronomy

TENDER NOTIFICATION

NO : NITR/PH/HOD/PM/2017/05

Dated: 29.06.2017

Name of the component: **Fully Automated and Integrated Raman spectrometer
Comprising of Confocal Raman Spectroscopy, Raman Imaging
and Photoluminescence Measurements with Accessories**

Quantity required : 1 Number (With all information's provided in technical specification)

EMD Amount : **Rs. 3,00,000/-**

Delivery : Within 3 months (90 days) from the date of purchase order

Last Date of submission of Tender: 20/07/2017, 3:00 P.M.

Address for submission of Tender: **The Registrar**

**National Institute of Technology
Rourkela – 769 008, Odisha, INDIA**

With Kind Attention to:

Prof. Pitamber Mahanandia
Through H.O.D, Department of Physics & Astronomy,
National Institute of Technology,
Rourkela – 769 008, Odisha, INDIA

Date of opening of technical bid: 20/07/2017, 4:00 P.M.

Date of opening of financial/Commercial bid: 20/07/2017, 5:00 P.M.

TENDER NOTIFICATION
for
**Procurement & Installation of Fully Automated and Integrated Raman Spectrometer
for Confocal Raman Spectroscopy, Raman Imaging and Photoluminescence
Measurements with Accessories**
at

Director, National Institute of Technology (NIT) Rourkela, Odisha invites tender for supply, delivery and installation of Fully Automated and Integrated Raman spectrometer comprising of Confocal Raman Spectroscopy, Raman Imaging and Photoluminescence Measurements with Accessories as per specifications given in the **Annexure-I** attached to the Tender form. All offers should be made in English and should be written in both figures and words. Tender documents can be downloaded from the website (http://nitrkl.ac.in/Jobs_Tenders/9Equipment/Default.aspx) of the Institute.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, NIT Rourkela, reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

The Bidders are requested to give detailed tender in their own forms in two Bids i.e.

Part : I- Technical Bid.

Part : II- Financial/Commercial Bid.

There will be a Pre-Bid meeting on date: 07/07/2017, Time: 3.30PM in the committee room of department of Physics & Astronomy, NIT Rourkela.

Terms and Conditions:

1. The technical and financial bids **should be quoted** and put in sealed envelopes marked “**Technical bid**” and “**Financial/Commercial bid**” separately as applicable. The bidder should also submit an undertaking to abide by all the terms and conditions laid down in the tender document along with the technical bid. These separate bids envelopes are to be put in an outer envelope which should also be sealed.
2. The Vendors who have earlier supplied the equipments to any of the NITs, IITs, IISc, IISERs and other Scientific Institutes/Universities of National Repute may only tender. The details of such institutions and the cost with the name of equipment may also be supplied with the bids.
3. The technical and financial bids should be submitted in original. The financial bid should Include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
4. Each individual sealed envelope as well as the outer envelope should be marked with the **Tender Notice No.: NITR/PH/HOD/PM/2017/05, Dated 29.06.2017**
5. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance.

6. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.
7. Any bids received after due **date and time** shall not be considered.
8. The Technical Bids will be opened on **Date and Time**. The date & time for opening of Financial Bids will be informed later on to the technically qualified bidders.
9. **While sending rates, the firm shall give an undertaking to the effect that “the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.” In case the firms do not give this undertaking, their bids will not be considered.**
10. If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should be attached.
11. The quantity shown against the items is approximate and may vary as per demand of the Institute at the time of placing order.
12. All tender documents should have to be sent through courier, speed post or registered post or to drop in the drop box available in dispatch section. All tender documents received after the specified date and time shall not be considered. The postal address for sending the sealed bids is:

**The Registrar
National Institute of Technology,
Rourkela-769008, Odisha, INDIA**

With Kind Attention to: Prof. Pitamber Mahanandia
Through H.O.D, Department of Physics & Astronomy,
National Institute of Technology, Rourkela – 769 008,
Odisha, INDIA

13. In the event of any dispute or difference(s) between the vendee Institute (NIT Rourkela) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, NIT Rourkela, who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act. The decision of the arbitrator shall be final and binding on both the parties.
14. The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
15. All disputes shall be subject to Rourkela Jurisdiction only.
16. All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the tenderer shall be summarily rejected.
17. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

Note: Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. In exceptional situations, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

18. Clarifications:

In case the bidder requires any clarification regarding the tender documents, they are requested to contact our office (e-mail: purchase@nitrkl.ac.in, hod-ph@nitrkl.ac.in & pitam@nitrkl.ac.in).

19. Tender Cost:

A Demand draft of **Rs. 2000/-** towards non-refundable **tender fee, drawn in favour of “Director, NIT Rourkela”** payable at Rourkela should accompany the Technical bid documents. In the absence of tender cost, the tender will not be accepted.

20. Earnest Money Deposit (EMD):

A refundable amount of EMD @ **Rs. 3,00,000/-** as earnest money deposit (EMD) in the shape of DD from a scheduled banks in India (valid for a minimum period of 3 months from the date of opening of tender) should accompany the bid documents. The DD should be drawn in favour of “The Director, NIT Rourkela payable at Rourkela should accompany the bid documents. The EMD should be kept in a separate sealed envelope, should be marked clearly and put in the outer envelope that contains the technical and financial bid envelopes. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. Failure to deposit **Earnest Money** will lead to rejection of tender.

21. Pre – Qualification Criteria:

- a. Bidders should be the manufacturer/authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- b. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- c. OEM should be internationally reputed Branded Company.
- d. Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid. Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

22. Prices:

- a) The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (NIT Rourkela). NIT Rourkela is registered with DSIR, Govt. of India and is exempted from Custom / Excise Duty. Exemption Certificate to this effect will be issued by NIT Rourkela. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. The price quoted shall be considered firm and no price escalation will be permitted at any time subsequently. **In the price bid/financial bid, the vendor should clearly mention the final price breakup i.e. ex-works price/FCA price, FOB price, CIP/CIF price & NIT Rourkela Campus price, as applicable in their bid.**

- b) In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. For imported equipments, the Letter of Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.

Please provide GSTIN of the firm along with the allotted by the Concerned authorities in your quotation.

23. Validity:

The bid should be valid for acceptance up to a period of 90 Days. The Bidders should be ready to extend the validity, if required without any additional financial implications.

24. Delivery:

All the equipments are to be delivered at NIT Rourkela, Odisha. The Equipment should be delivered within the period as specified in the purchase order. If the bidder fails to deliver and place any or all the Equipments or perform the service by the specified date, penalty at the rate of 1% per month of the total order value subject to the maximum of 05% of total order value will be deducted.

25. Installation and Training:

After successful delivery, the bidders are required to provide the technical experts for installation. Bidders need to provide adequate training to the nominated persons of NIT Rourkela at their cost. NIT Rourkela will not bear any training expenditure. During installation those experts will also train few Faculty, technical assistant, and students of NIT Rourkela. Installation certificate will be signed after satisfactory observation of the performance of the installed system after complete installation. Upgradation of the software for the next 10 years free of cost.

26. Warranty Declaration:

Bidders must give the comprehensive onsite warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that “everything to be supplied by us here under shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document. Any deviation in the material, and the specifications from the accepted terms is liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction of NIT Rourkela and as per specifications specified in the order/contract and demonstrate it at the their own cost.

27. Performance Bank Guarantee:

A performance bank guarantee from a scheduled bank in India for an amount equal to 5% of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.

28. Terms of Payment:

Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. of the equipments. **This must be specified in the tender/quotation.**

In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through irrecoverable Letter of Credit in two installments. 80 % of the money will be released on submission of shipping of documents. Remaining 20 % will be

released after successful installation of the instrument and submission of a performance bank guarantee for 5% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty.

29. Tender expenses and documents:

All costs incurred by the bidder in the preparation of the tender shall be at the entire expenses of the bidder.

30. Tender Evaluation Criteria:

The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.

31. Return of EMD:

The earnest money of unsuccessful bidders will be returned to them without any interest within 30 working days after awarding the purchase order.

32. Manual and documentation:

All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.

33. Corrupt or Fraudulent Practices

NIT Rourkela requires that the bidders who wish to bid for this project have highest standards of ethics. NIT Rourkela will reject a bid if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices while competing for this contract. NIT Rourkela may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices during the execution of contract.

34. Indemnity

The vendor shall indemnify, protect and save NIT Rourkela against all claims, losses, costs, damages, expenses, action suits and other proceeding, resulting from infringement of any law pertaining to patent, trademarks, copyrights etc. or such other statutory infringements in respect of all the equipment's supplied by him.

35. Insurance:

The equipment's to be supplied will be insured by the vendor against all risks of loss or damage from the date of shipment till such time it is delivered at NIT, Rourkela site in case of Rupee/Foreign currency transaction.

36. Interpretation of the clauses in the Tender Document / Contract Document:

In case of any ambiguity / dispute in the interpretation of any of the clauses in this Tender Document, Director, NIT Rourkela's interpretation of the clauses shall be final and binding on all Parties.

Bidders should go through the tender terms, conditions and specifications carefully and fill in the NIT Rourkela attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

BID PARTICULARS

To be used by the bidder for submission of the bid

1. Name and Model of Raman Spectrometer:
(As mentioned in technical specifications)
2. Currency and Price of the Raman spectrometer:
3. Name of the Supplier
4. Taxes and other charges :
 - (i) Specify the type of taxes and duties in percentages and also in figures
 - (ii) Specify other charges in figures:
5. Warranty period should be mentioned in Technical :
6. Delivery Schedule:
7. Name and address of the firm for placing purchase order:
8. Name and address of Indian authorized agent (in case of imports only):

Signature of the Bidder:

Name and Designation:

Business Address:

.....

.....

Telephone No. :

Fax No. :

Mobile No :

Email :

Web

Place :

Date :

Seal of the Bidder's Firm

DECLARATION

I/we have not tampered/modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our tender will be summarily rejected and full Earnest Money Deposit (EMD) will be forfeited and I/we am/are liable to be banned from doing business with NIT, Rourkela and /or prosecuted.

Signature of the Bidder:

Name and Designation:

Business Address:

Telephone No. :

Fax No. :

Mobile No :

Email :

Web

Place :

Date :

Seal of the Bidder's Firm

Any other details required may be obtained from the contact person given in the notice inviting tender during the office hours.

Compliance statement for Fully Automated and Integrated Raman Spectrometer comprising of Confocal Raman Spectroscopy, Raman Imaging and Photoluminescence Measurements with Accessories

Required Indent Specifications	
Is Tender fees attached? Tender cost enclosed	Yes/No (If Yes D.D.No. and Bank Name)
Is EMD attached? (if applicable)	Yes/No (If Yes D.D.No. and Bank Name)
Is the bidder original equipment manufacturer (OEM)/authorized dealer?	Yes/No
If authorized dealer, recent dated certificate to this effect from OEM, attached or not ?	Yes/No
Undertaking from OEM regarding technical support & extended warranty present.	Yes/No
Undertaking from bidder regarding acceptance of tender terms & Conditions	Yes/No
List of reputed users for the past three years specific to the Instrument.	Yes/No
Whether special educational discount for NIT Rourkela is given	Yes/No
Whether two weeks of training of operator and research students without any charge offered.	Yes/No(Duration)
No. of trained engineers stationed near to Rourkela, Odisha.	Yes/No(with numbers)

Annexure-I

Technical Specifications Automated and Integrated Raman Spectrometer for Micro Raman Spectroscopy, Raman Imaging and Photoluminescence measurements with Accessories.

Sealed tender bids are invited from reputed / authorized vendors / companies for fully automated computer controlled confocal Micro Raman spectrometer with capabilities of recording Raman spectrum, Raman Imaging and Photo-luminescence (PL) measurements on various kind of solids (amorphous ceramics and crystalline), nano materials, glassy, polymer and composites, thin films and liquids of micro, and macro samples.

The Micro Rama spectrometer should include the confocal microscope with objectives, detector, Lasers, optics and other necessary accessories for all components of the machine, along with computers & software for data acquisition and data analysis. Companies/Venders should quote for supply, delivery, installation, testing and commissioning with a list of accessories required for complete and smooth installation and uninterrupted operation of the Spectrometer.

The technical offer should also include make and model number of facilities such as microscope, LASERS, required optic and optical components for interfacing with heating and cooling stages etc.

The machine should be capable to...

1. Perform Micro Raman measurements in the range of 50 cm^{-1} to 5000 cm^{-1} with a resolution better than $0.5\text{ cm}^{-1}/\text{pixel}$ with suitable optics.
2. Perform photo-luminescence measurements in the range of 300 nm (or lower) to 1050 nm (or higher) with a resolution better than 0.1 nm.
3. Performing confocal Raman Imaging/Mapping with a spatial resolution of 250nm (or lower)
4. Perform temperature dependent Raman and PL measurements with ultra-low vibrations at low temperatures at different intervals down from -196°C in the step up to 600°C using a suitable heating and cooling stage with temperature controller unit. The temperature controlling should be automated through software.

Technical Specification for Raman Spectrometer for Micro Raman, PL measurements and Raman imaging			
Raman Spectrometer	A computer controlled spectrometer with large focal length type achromatic spectrograph equipped with confocal microscope and reflective optics capable of producing Raman Spectra in the spectral range of 50 cm^{-1} to 5000 cm^{-1} . The Laser beam should be coupled to the Raman microscope		
Spectral Range (Excitation wavelengths)	200 nm (or less) – 2200 nm (or higher)		
Spectral resolution	<table border="1"> <tr> <td>~ 0.5 cm^{-1}/pixel (or better) with suitable optics</td> <td> <p>The Vender should specify with suitable optics and gratings to achieve best spectral resolution for the following excitation lasers.</p> <ul style="list-style-type: none"> i. 355 nm wavelength ii. 532 nm wavelength iii. 633 nm wavelength </td> </tr> </table>	~ 0.5 cm^{-1} /pixel (or better) with suitable optics	<p>The Vender should specify with suitable optics and gratings to achieve best spectral resolution for the following excitation lasers.</p> <ul style="list-style-type: none"> i. 355 nm wavelength ii. 532 nm wavelength iii. 633 nm wavelength
~ 0.5 cm^{-1} /pixel (or better) with suitable optics	<p>The Vender should specify with suitable optics and gratings to achieve best spectral resolution for the following excitation lasers.</p> <ul style="list-style-type: none"> i. 355 nm wavelength ii. 532 nm wavelength iii. 633 nm wavelength 		
Spatial resolution	≤ 500 nm or (lower)		
Gratings	Holographic gratings with 300, 600, 1200, 1800 and 2400 gr/mm mounted on a motorized turret driven and controlled by software. The grating mount should be capable of holding at least two or more gratings at a time. The gratings should be quickly and easily inter changeable without realignment.		
Rayleigh scattering filters	Should be included.		
The low wave number cut-off for all LASERS preferably should be 50 cm^{-1} for LASERS 633 nm and 532 nm with suitable optics. The technical quote should provide the details about the edge and notch filters for Raman measurements down to 50 cm^{-1} .			
Spectral calibration should be automated through software with the standard sample used for calibration should be provided and mode of calibration should be discussed.			
Suppression of Fluorescence	The machine should have fluorescence rejection mode for all laser lines.		

Spectra Repeatability	Should be 0.1 cm ⁻¹ (or better)
Spectra Scanning Linearity	< 0.5 cm ⁻¹ (or better)

Lasers	
All the lasers should be air cooled for maximal confocal performance.	All the LASERS should be solid state lasers. The LASERS should be extremely stable for the long time Raman experiments (at least 48 hours continuously). All LASERS should be single mode. Vendors also provide the information and data sheet about sensitivity (signal to noise ratio) for each LASER. <ul style="list-style-type: none"> i. Excitation LASER 355 nm (10mW or more) ii. Excitation LASER 532 nm (75mW or more) iii. Excitation LASER 633 nm (35mW or more)
Lasers switching preferably through software controlled.	
Laser Power Control	The spectrometer should be able to control laser intensity on the sample from 0 to 100% through software.
Laser line filters should be provided if required for specific excitation laser.	
Laser Polarization	Must be for all the specified excitation laser wavelengths. Zero order half wave plate for all LASERS (with thickness ~ 1 mm or less, 1 inch diameter) with a precision rotation mount. Zero order quarter wave plate for all LASERS (with thickness ~ 1mm or less, 1 inch diameter) with a precision rotation mount.
Digital laser power meter	The power meter should be capable to measure LASER power 50 nW (or less) – 500 mW (or more), with accessories to measure laser power. Spectral Range 200 nm (or less) to 1100 nm (or more). Head temperature measurement through Thermistor. Power meter should have accuracy of 0.5% (or less). The Resolution 1 nW to 10 Nw.
Safety equipment and protective eye-glasses for LASERS (5 numbers)	
Optic port for all LASERS for remote sampling probe.	

Confocal Microscope		
A high stability open space research grade microscope with 6X turrets.		
Microscope should be branded research grade microscope with USB-PC controlled high resolution camera for viewing and white light polarization option. The vendor should clearly specify the geometry, model and make of the microscope.		
Objectives	Infinity corrected objectives suitable for Raman and PL Measurements.	
	1. Normal function	Magnification 5X, 20X, 50X (NA~ 0.75), 100X (NA~0.9)
	2. Long working distance (WD) objectives	20 X (WD ~12 mm) 50X (WD ~10 mm or more) & 100X (WD~3 mm). Long working 50X objective should be compatible with heating stage (described below) to perform low temperature micro Raman measurements
	3. Objectives for UV range	Include the suitable 50X objective for (WD~1 mm) and WD 10X (~10 mm)
<ul style="list-style-type: none"> • Coupled Raman probe for remote sampling option (for both excitation and collection of the scattered light from the sample to spectrometer). • Optical system to maintain the polarization of the LASER light impinging on the sample and must be compatible with Raman Measurements. Raman Probe should be capable of both motorized and manual exit/entrance for coupling for probes and lasers. 		
Microscope should have back scattering geometry for spectrum collection.		
The microscope should have provision for large free space under the objective turret to accommodate large sample holders like cryostat, high temperature and high pressure cells.		

NOTE: The vendor should specify details of the available objectives such as magnification and working distance, if not listed above.

Confocal Raman Imaging XYZ motorized stage with 100nm (or better) step size in XY and 10nm (or better) in Z direction. A detachable sample holder XYZ Mapping Stage with manual (with Joy Stick) as well as computer-controlled, XY-Z movements	
Resolution	~ 100 nm or lower
Scan Range	Several 100 μm to mm (short range) or several cm (long range).
Capability of scanning area of 30 μm x 30 μm with 50X objective	
Spatial resolution	250 nm or lower
Specify Travel range with step size and reproducibility better than < 0.01%, software controlled.	

Multichannel Charge coupled device (CCD) detector	
High efficiency thermoelectrically cooled CCD	Fully automated multichannel detectors suitable for both Raman and PL measurements with active pixels 1024 X 256 pixels and pixel size of 26 μm X 26 μm (or better).
The spectral range	200 nm (or less) to 1000 nm (or more)
Very low noise levels and dark noise less than 0.001 e/pixel/sec or better	
Quantum efficiency must be 30 % or more (in the required spectral range)	
Computer interface and software controlled: USB and/or RS-232/IEEE-488	

Computer and software
The state-of-the-art computer control system compatible-with and optimized for the application software to perform the various measurement options automatically. The desktop computer with i7 Processor or better, 16 GB RAM, 1 TB Hard drive, DVD RW, One external hard disk for data storage, 27” inches colour LED monitor, Wireless keyboard and mouse with preinstalled software would be preferable.
<ul style="list-style-type: none"> ➤ The data acquisition and analysis software should be compatible with Windows with latest version of computer environment (64 bits). ➤ Enough number of software licenses should be supplied to be used with more than two computers (one as main and one standby) for control of the instrument, data acquisition and data analysis for Raman, photoluminescence and Raman mapping with storage options. ➤ The software should have automatic spectral intensity corrections. The data file should be compatible for plotting in different data plotting and analysing software.
The vendor should provide more than 4 number of the latest software licenses for data/spectrum analysis.
A latest library of Raman spectra for inorganic and organics materials should be provided.

Heating and cooling stage for Confocal Microscopy from ⁻¹96°C to 600°C including for mounting microscope systems	
Heating and cooling option stage should be able to performing Raman and PL measurements covering the temperature range of -196°C to 600°C (or more).	
The technical quote must provide the details of the optical assembly and support for the smooth functioning of the low and high temperature Raman and PL measurements.	
Calibrated platinum resistor sensor for temperature measurements and control of sample space with other required accessories for low temperature micro- Raman measurements.	
The stage should have a smart interface for fully automated design for specified micro Raman and PL measurements.	
Working distance should be compatible with 50X and 20X objective (WD ~10 mm) for optical measurements.	
Heating Rate	150°C/min or higher
Temperature stability	< 0.1°C
Sample area	At least 22 mm diameter
Objective lens minimum required working distance - 4.5mm	
Can be used with all imaging techniques	
Water cooled stage body for high temperature work (>300°C)	
Suitable for Confocal, Laser Raman	

Research Grade Vibrational Isolated Optical Table for Raman Spectrometer	
NIT Rourkela requires an ultra-low vibration isolated optical table to be used with confocal Raman spectrometer for Raman, Photo-luminescent measurements and Raman Imaging/mapping. The table should be able to accommodate spectrometer, microscope, lasers, Close cycle refrigerator, high temperature stages and optics for Micro Raman and PL measurements. The technical specifications of the table are mentioned below.	
The table Dimension should be able to accommodate the spectrometer with adequate ambiance.	
Table and table-top material should be non-magnetic.	
Appropriate surface flatness should be over the area of the table surface.	
Core design	Trussed honeycomb based and vertically bonded closed cell construction.
Mounting Holes	M6 diameter and 1 inch separated holes on 25 mm grid.
Maximum dynamic deflection coefficient should be 10^{-3} (or less).	
Maximum deflection under load should be 10^{-5} mm (or less).	
Maximum relative motion should be 10^{-9} mm (or less).	
Tools and Spare part for smooth functioning of the machine for 3-5 years.	

Other Requirements	
Vendor should provide the standard samples for testing and calibrating the instruments at any time for the demonstration of the performance of equipment.	
Manuals (both electronic and hard copy) – technical aspects with required service details.	
Installation	The satisfactory installation to the full specifications of the machine with all accessories at NIT Rourkela campus. Any additional equipment/accessory for the installation of the system should be quoted invariably. NIT Rourkela will provide only space and electrical connection.
Training	Free training to NIT Rourkela operators and students/staffs to the satisfaction of NIT Rourkela.
Warranty	3 year on-site warranty (give details including scope, no. of visits, etc.) Any part(s) that are not covered under warranty should be mentioned clearly.
The complete system should be compatible to 220-230 VAC 50Hz, single phase power supply. The vendor should specify the power requirements for all the components in the technical quotation.	
Vendor should provide the tools and Spare part for smooth functioning of the machine for 3-5 years.	
Opto-mechanics accessories and tools made of stainless steel for macro Raman measurements	

Guarantee / Warranty and after sales technical support

The tender must be quoted with three years on-site comprehensive Warranty/Guarantee commencing from the date of complete and satisfactory installation of the equipment against the defect of any manufacturing, workmanship and poor quality of the components. The bidder also must agree and issue a certificate stating that technical query will be responded within 7 working days and the support will be provided within 14 working days from the date of reporting of the technical failure for down time free operation of the instrument.

Operation and service manual in English (electronic and hard copy) should be provided with all the equipment and components.

In the technical details, specify clearly about the kind of service/maintenance required for the system. Also mention that whether the service has to be carried out by a company engineer or it can be carried by trained service personnel within India.

The complete training of all measurement options should be free for NIT Rourkela user staff/students members, onsite.

Enclose pre-installation guide for the details on electrical power, space and other for all components and essential accessories.

Bid should include all other essential auxiliary equipment and spares for its smooth operation for 3-5 years from date of installation (please provide list with the details).

All sample handling tool-kits/consumables should be provided. Wherever, consumables and other items required to handle the system while operating all measurement options, must be quoted separately for enough quantity.

Quote separately for all optional items/accessories, optical components and consumables which are not explicitly specified above however required for smooth functioning of the machines.

A list of institutes (with details) in India where the similar equipment (with all options in this tender) has been sold or is under operation should be provided. Prospective vendor should clearly mention the type of measurement options (along with the main system) supplied to these institutes.

The manufacturer has to stand guarantee for the relocation of the system from the present campus of NIT Rourkela to any other place if any in future.

Optional items for future upgradation	
The spectrometer should be capable upgradation to the following laser with no need to send the equipment back to manufacturer's works for modification.	
Future upgrade on site for AFM with multi probe systems, Surface Enhanced Raman Spectroscopy (SERS) with no need to send the equipment back to manufacturer's works for modification. The same controller and software to be compatible for use with AFM and SERS.	
Relevant Scan Stage for AFM upgraded Raman Spectrometer.	<ul style="list-style-type: none"> • Piezo-driven scanner when upgraded the spectrometer for AFM with 200 μm x 200 μm x 20 μm (X x Y x Z) scan range. • Scan hardware linearized with closed-loop feedback. • True-Scan™ dynamic position correction, software corrects position of beam spot on sample from capacitive feedback from the piezo-stage. • Position accuracy < 2 nm in x and y direction, < 0.2 nm in the z direction.
Polarization control kit for all the supplied lasers.	
10kVA UPS for 2 hours back in case of main failure.	
Low Temperature cryostat system for Raman and PL measurements with following specifications.	<ol style="list-style-type: none"> a. Operating Temperature range 10 K to 300 K b. A standard cooling and heating rate c. Relevant Temperature controllers d. Cooling power at different stages