

	<p style="text-align: center;">INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036</p> <p style="text-align: center;">Telephone: [044] 2257 9798/9723 E-mail: arpp@iitm.ac.in</p>	
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V. Sathyanarayanan
Senior Manager (Project Purchase)

Ref: CIE/INBM/001/2018
Date: 2.11.2018

Open Tender No: CIE/INBM/001/2018

Particulars	Date and Time	Venue
Pre Bid Meeting	9-11-2018 at 12.00 Noon	BSB 106, Dept. of Civil Engineering, IIT Madras
Due Date for submission of Tenders	22-11-2018 at 3.00 p.m.	
Technical Bid opening meeting	22-11-2018 at 4.00 p.m.	BSB 106, Dept. of Civil Engineering, IIT Madras

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of **“Liquid Chromatography - Mass spectrometer system (LC-MS)”** conforming to the specifications given in Annexure I.

Vendor who can supply and integrate the above equipment alone need to respond to the tender please.

Instructions to the Bidder

- I. **Preparation of Bids:** - The tenders should be submitted under two-bid system (i.e.) Technical bid and Financial bid.
- II. **Delivery of the tender:** - The tender shall be sent to the addresses mentioned below, either by post or by courier so as to reach our office before the due date and time specified in our schedule. The offer/bid can also be dropped in the tender box on or before the due date and time specified in the schedule.
The tender box is kept in the office of the:

**Senior Manager,
Project Purchase,
IC & SR Building 2nd floor,
I.I.T. Madras,
Chennai – 600 036.**
- III. **Opening of the tender:** - The offer/bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and will be examined by a technical committee which will decide the suitability of the bids as per our specifications and requirements. All bidders will be invited for opening of the technical bids. With respect to opening the financial bid, only technically qualified bidders will be called.
- IV. **Prices:** - The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to the **Department of Civil Engineering**. The offer/bid should be exclusive of taxes

and duties. The percentage of tax & duties should be clearly indicated separately. Kindly note that IIT Madras is eligible for concessional GST and relevant certificate will be issued.

In case of import supply, the price should be quoted without custom duty. IIT Madras is exempted from levy of IGST on Imports and eligible for concessional custom duty (not exceeding 5%) and the price should be quoted on EX-WORKS and CIP basis indicating the mode of shipment.

- V. **Agency Commission:** - Agency commission, if any, will be paid to the Indian agents in rupees after receipt of the equipment and its satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in the tender document even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. The foreign Principal should indicate the percentage of payment and it should be included in the basic price quoted originally (if any)..
- VI. **Terms of Delivery:** - The item should be supplied to the **Department of Civil Engineering, IIT Madras** as per the Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions.
- VII. **Technical Bid Opening:** The technical bid will be on 22nd November 2018, 4:00 PM at the **Department of Civil Engineering, IIT-Madras**. The financial bids of those tenders who are technically qualified will be opened at a later date under intimation to them.
- VIII. **IIT Madras** reserves the full right to accept / reject any tender at any stage without assigning any reason.

Yours sincerely,

V. Sathyanarayanan
Senior Manager (Project Purchase)
IC&SR Building, I.I.T. Madras,
Chennai – 600 036.

SCHEDULE

Important Conditions of the tender

1. The due date for the submission of the tender is on **22-11-2018, 3 pm.**

The offers / bids should be submitted in two bids systems (i.e.) Technical bid and financial bid. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes, transportation, packing & forwarding, installation, guarantee, payment terms, pricing terms etc. The Technical bid and financial bid should be put in separate covers and sealed. Both the sealed covers should be put in a bigger cover. The Open Tender for supply of **“Liquid Chromatography - Mass spectrometer system (LC-MS)”** should be written on the left side of the Outer bigger cover and sealed.

2. **EMD: - The EMD in the form of account payee DD for 2% value of the item in favor of Registrar IIT Madras should be enclosed in the cover containing financial bid.** Any offer not accompanied with the EMD shall be rejected summarily as non-responsive.

The EMD of the unsuccessful bidders shall be returned within 30 days of the end of the bid validity period. The same shall be forfeited, if the tenderers withdraw their offer after the opening during the bid validity period. The Institute shall not be liable for payment of any interest on EMD. EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME).

When no local agent, the foreign vendor can submit demand draft equal to 2% or wire transfer the amount to our account as detailed in the attachment (Annexure II) and enclose the proof with the financial bid.

3. **Performance Security: -** The successful bidder should submit Performance Security for an amount of 5% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from any nationalized bank in India. **The performance security should be furnished within 21 days from the delivery of the purchase order.**

Performance Security in the form of Bank Guarantee:- In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed through the Beneficiary Bank to the end user bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee from a Nationalized Bank of India.

The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.

4. **Indian agent:** If an Indian agent is involved, the following documents must be enclosed:
Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.
 - ✓ Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
5. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.
6. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid. No prices should ever be included in the Technical bid.

7. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
8. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
9. **Delivery Schedule:** - The tenderer should indicate clearly the time required for delivery of the item (subjected to the executive committee-IITMadras approval). In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.
If there is delay, the penalty will be @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than accepted time frame by IITM, the PO would be cancelled and liquidated damages will be enforced.
10. **Risk Purchase Clause:-** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
11. **Payment:-**
 - (i) No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done).
 - (ii) **Advance Payment:** No advance payment is generally admissible. In case of specific percentage of advance payment is required, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.
12. **On-site Installation:** - The equipment or machinery has to be installed or commissioned by the successful bidder within 15 to 20 days from the date of receipt of the item at site of IIT Madras.
13. **Warranty/Guarantee:** - The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Normally the warranty should be for four years from the date of commissioning of the equipment. After the warranty of three years, the bidder should be willing to maintain the equipment further at an AMC rate which should be specified in the bid by the bidder. Also the manufacturer should give an undertaking to support the equipment for 5 years from the date of supply. Also no equipment which is not currently in production should be quoted. Any extended warranty offered for the same has to be mentioned separately (For more details please refer our Technical Specifications).
14. **Late offer:** - The offers received after the due date and time will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
15. **Acceptance and Rejection:** - I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
16. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**

17. Disputes and Jurisdiction:

Settlement of Disputes: Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be

attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate one arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai.

- a. **The Applicable Law:** This Purchase Order shall be construed, Interpreted and governed by the Laws of India, Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.
- b. Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.

20. All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

Acknowledgement: - It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE
COMPANY WITH DATE**

Specifications for a Liquid Chromatography – Mass Spectrometer System (LC-MS)**1. High Performance Liquid Chromatography System (HPLC)**

The HPLC system must have the following specifications

a) Pump and Solvent Delivery:

- Quaternary Low Pressure Gradient Solvent Delivery Unit
- The system must accommodate atleast 4 solvents with appropriate mixing to provide uniform and constant composition of the mobile phase
- The flow rate should be adjustable between 0.1 to 10 ml/min
- Flow rate accuracy should be $\pm 1\%$ or ± 2 ul/min of set value whichever is larger
- Flow rate precision should be less than $\pm 0.05\%$ RSD
- Pressure tolerance : 5,000 psi or above
- The system must accommodate gradient as well as isocratic modes of operation.
- The system must allow the programming of the gradient methods with different solvents and must accommodate atleast 4 solvents simultaneously. Appropriate mixers or equivalent equipment must be built into maintain the required composition and the flow rate at the column.
- If there are teflon based components in the pumping system, there must be a provision to replace these preferably with non-teflon alternatives for the analysis of fluorinated compounds. This include components such as seals, liners etc. Alternatives could be either PEEK or Stainless steel or both.

b) Degasser:

On-line Degasser for all the solvent lines must be provided.

c) Auto-Sample Injector with sample cooler:

- Sample injection volume should be variable between 0.1 μ l to 100 μ l
- It must be capable of very fast injection time of <20sec/sample, with higher injection speed is preferred for high throughput analysis capability
- Flow line rinse capability both before and after sampling should be possible
- Autosampler must be capable of holding at least 100 Nos. of 1.5ml Vial
- The system must have a tray for holding the solvent bottles safely. Solvent bottles and appropriate suction tubes with inline metal/ceramic or equivalent filters must be provided for use with HPLC grade solvents.
- Clear and easy valves and methods for purging must be available. The tools required for the purging must be provided along with the system.
- The system should preferably have some form of leak detection system.

d) Column Oven:

- Temperature setting range 20°C to 80°C
- Temperature setting in steps of 1°C
- The oven compartment should be able to accommodate at least two 30 cm columns simultaneously.

e) Column:

One C18 standard generic column and guard column should be offered along with the system.

f) UV-Vis Detector:

A Diode array detector (PDA or DAD) must be provided for the measurement of the signal.

- This system must be capable of measuring absorbance in at least the UV and Visible light range of wavelengths.
- The DAD detector must have a flow cell that can be easily cleaned if necessary. It must also be accessible for easy change of lamps and maintenance.
- The range of wavelengths must be between 190 – 800 nm.
- Appropriate communication cables must be provided to communicate with the LC injection system. The DAD must be synchronized with the LC system for the start of a run and must not require the user to press start on the detector system.
- Wavelength accuracy must be ± 1 nm maximum & Wavelength reproducibility must be ± 0.1 nm.

g) Flow Divert Valve:

Flow Divert Valve to be installed after the detector for automatic switching the flow between the MS and drain should be included.

2) High Sensitivity Triple Quadrupole Mass Spectrometer – MS/MS System

The MS/MS detector must take the input from the HPLC system using appropriate interfaces that must be provided and installed so the instrument works seamlessly as one unit. The following are the specifications of the MS/MS system.

a) Mass Range:

- 2-2000 AMU

b) Mass Resolution:

- Unit mass FWHM (Full Width Half Maximum) < 0.7

c) Mass Stability

- < 0.1 Da over 24 hours

d) Sensitivity:

- ESI Positive mode: 1pg/uL on column reserpine should give S/N greater than 15,000:1
- ESI Negative mode: 1pg/uL on column chloramphenicol should give S/N greater than 10,000:1

Scan speed: Should have the scan speed of 12,000 amu per sec or above

e) Source Interface

- Dedicated ESI (Electro Spray Ionization) Source should be offered.
- Dedicated APCI (Atmospheric Pressure Chemical Ionization) Source must be offered.
- Orthogonal off-axis spray (Electrospray) or any other equally efficient technology capable of avoiding interference from solvents and other extraneous matter.
- Interface should maintain cleanliness of ion optics and capable of handling large batches of complex samples
- The system must be capable of handling large batches of complex sample for long period of time without significant performance degradation
- Maintenance of the MS source must be preferably possible without the shutting of vacuum.
- Interface capable of ambient temperature operation and without complex apertures to maintain structural integrity of thermally labile and fragile molecules.
- Other modes of sample interface must also be possible for future use.

f) Polarity switching time:

+ve / -ve polarity switching time between alternate MRM scans should be less than 20 msec

g) Pause time:

1 msec

h) Dwell time:

1 msec

i) Vacuum System:

- Robust high efficiency vacuum system with minimum maintenance and utility with low noise level.
- Vacuum read backs must be digitally monitored and controlled through software to ensure fail-safe operation in the event of power failure.
- All accessories required for the proper functioning of the vacuum system should be included.
- The system must include the pumps necessary to create a vacuum in the MS that will facilitate the analysis of a wide range of organic molecules. The detailed specifications of the organic molecules of our interest are mentioned later in this document.

j) Mass Analyser and Mass Filter

- A triple quadrupole system must be provided that contains two mass filter quadrupole and a collision cell (or equivalent system).
- Must be able to function in the following modes
 - Full scan
 - SIM
 - Product scan mode
 - Precursor scan mode
 - Neutral loss scan mode
 - Selected reaction monitoring mode (Single and Multiple reaction – SRM and MRM)
 - MS and MS/MS in a single injection with matrix background monitoring)
 - Simultaneous full scan and MRM

k) MS Detector:

- A high sensitivity, high throughput detector with zero dead time, low noise and high accuracy at low level detections.
- An off-axis dynolite photomultiplier/Electron Multiplier detector
- Detector must operate in both positive and negative ion modes.
- Capable of switching polarity rapidly.

l) LC-MS/MS Software

A software program with a graphical user interface must be provided along with the system. This software must have the following specifications:

- A software system controlling all the aspects of the HPLC system mentioned above must be provided (Drive or CD).
- This system must be capable of creating and storing methods with stored parameters such as flow rate, run time, composition such as isocratic or gradient, column temperature – if applicable, acquisition parameters of the UV-Vis as well as the MS/MS parameters in a run. It should be possible to call these methods during a sequence of samples in the autosampler. The system should have the capability of running different methods for different samples. The software should allow the programming of sample sequence for running different samples with different methods without user intervention and in an automated manner.
- The system must control startup/shutdown/standby modes

- The system must accommodate the control/tuning/storage of all HPLC as well as MS/MS parameters.
- The software should have the capability of different display parameters during the run of a sample. The post run data analysis should be available in the same software where the chromatogram of a run sample must be available for analysis. Data analysis must include standard chromatogram operations such as area, height, width and percentage estimation. The software system must also allow the easy integration of calibration data into data analysis methods. The software must be able to perform spectral analysis for UV-visible, fluorescence and RI detectors.
- The software data analysis system must also allow for the integration of UV or MS/MS spectral library information for automatic matching of the peaks with reference spectra, even if this might not be standard features. If this feature is available, please highlight it.
- The data analysis information and report preparation with customized settings must be available. The report format should be either rtf or pdf format. The raw data may be extractable as a csv format or text file.
- The software must be able to control the MS, acquire, store, process and reproduce the data by the same computer.
- Workstation must be able to control LC, Detector and auto sampler.
- It must be able to regulate the gas pressure and flow during the data acquisition and append to the relevant data file.
- Software must have automated calibration and Quantitative optimization.
- Automated MS to MS/MS switching during a single run with user selectable criteria
- 21 CFR 11 Compliant
- Must be capable of performing the following functions and should be upgradable.

m) Performance Requirements

The HPLC-MS/MS system is required for the analysis of various organic molecules either directly in water or in suitable organic extracts from other matrices. Vendor must provide documentation (references in peer-reviewed journal papers) of the use of the proposed instrument for the analysis of the following chemicals by any of the existing or past users. The concentration of the compounds given below (sensitivity) must be detectable in a standard or sample at levels ≤ 0.1 ng/mL (ppb) in the final extract and injected into the LC-MS.

i) Ciprofloxacin

ii) Triclosan

iii) Fluorinated and perfluorinated compounds

iv) Antibiotics – sulphonamides, tetracyclines, macrolides, quinolones, carbapenems, cephalosporins, colistin, ESBLs and its metabolites from different environmental sources like poultry/aquaculture/veterinary/pharmaceutical industry/pharmaceutical wastewater, soil and sludge.

3) Accessories

a) Imported Nitrogen Generator Should be supplied with the system along with the trouble free inbuilt compressor which should be sufficient enough to deliver the gases required to run the system.

b) Computer and Operating system:

Core i5 Processor, 8 GB Ram, 1 TB Hard disk, DVD Writer, 22" led monitor, Window 7/10 Operating System

c) Installation and Demonstration:

- IQ/OQ/PQ to be performed as per OEM protocol, should be done free of cost with necessary traceable standards along with necessary performance kit standard solutions.
- Demonstration and Training on system to our Lab personal at site to be incorporated, responsibility of the supplier for training of the lab personnel at supplier site/installation site.
- Basic training for a period of two weeks after installation & commissioning of the equipment to technical personnel to be provided at our site.
- Minimum of three training should be offered per year during the warranty period.

d) Accessories:

LC-MS/MS start-up kit should be supplied as standard.

All required standards for Mass calibration and tuning, HPLC calibration should be provided

e) UPS:

A branded UPS System with SMF Batteries, of appropriate capacity (minimum 10 KVA) and input/output phases with 1 hour battery back-up as per requirement of the LC MS/MS System should be offered.

f) Warranty and maintenance contract:

Two Years warranty and annual maintenance for the complete LC-MS/MS System and Nitrogen Generator should be offered. An additional 2 years of annual maintenance contract should also be included.

g) Service & Application Support:

Vendor should have after sales service support centre and application support centre for the offered System preferably at Chennai to provide prompt service. Application support for various applications of our interest at no additional cost for the analysis of compounds of our interest mentioned in section 2(m) should be provided in the first four years. This could be offered through a visit to our facility in person by an application specialist or via video conferencing or a video or at least a dedicated phone call at no additional expense within the first four years.

General terms and conditions

- The supplier/vendor must be an original equipment manufacturer or an authorised seller of the proprietary item
- The system should be delivered within 8 - 10 weeks from the opening of the letter of credit or issue of purchase order, whichever is later.
- Costs and related information should be given only in the financial bid.
- The cost should include 24 months warranty of the overall system and CIP up to Chennai.
- Prices quoted should be valid for at least 90 days.
- Item-wise break up of cost should be provided for the different items (parts).
- IIT Madras reserves the right to exclude some items from the purchase.
- The payment conditions consist of 90% LC at site and 10% after installation and satisfactory training.
 - The system should be installed and commissioned with no additional cost.
 - Training at IIT Madras should be provided with no additional cost.
 - Two copies of the system manual should be provided in CD form.
 - There must be a local service agent in India.

Technical Bid should comprise of the following:

- Detailed Technical brochure
- Detailed technical write up explaining how each of the Technical Specifications are complied with.
- The list of at least three Institutions/R&D units/Industry where similar installations have been supplied in India/abroad including contact details (name of the person in-charge, email and phone number) is to be provided.
- As per specification item No.2(m) the documents relating to the performance requirements to be enclosed.
- EMD SHOULD NOT BE ENCLOSED IN THE TECHNICAL BID

Installation and Demonstration:

- IQ/OQ/PQ to be performed as per OEM protocol, should be done free of cost with necessary traceable standards along with necessary performance kit standard solutions.
- Demonstration and Training on system to our Lab personal at site to be incorporated, responsibility of the supplier for training of the lab personnel at supplier site/installation site.
- Basic training for a period of two weeks after installation & commissioning of the equipment to technical personnel to be provided at our site.

After Sales, Service & Application Support:

Vendor should have after sales service support centre and application support centre for the offered System at India to provide prompt services, application support for various applications of our interest.

Reference:

Quoted model should have at-least 3 installation in India/Abroad. Three performance certificates of the quoted model in reputed institutions in India should be enclosed duly signed and stamped by the concerned scientist. Recent Performance should be enclosed.



CENTRE FOR INDUSTRIAL CONSULTANCY & SPONSORED RESEARCH (IC&SR)
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI 600 036



B NAGARAJAN
JOINT REGISTRAR (IC & SR)

Project Accounts
July 22, 2016

TO WHOMSOEVER IT MAY CONCERN

In connection with project, **US currency may be transferred to CANARA BANK, IIT - MADRAS Branch** with the following details.

FOR TRANSFER OF CURRENCY US DOLLAR

Please Credit in USD

(THROUGH)

JP MORGAN CHASE, NEW YORK
SWIFT CODE: CHASUS33

For Credit to

USD ACCOUNT No: 001-1395969, of CANARA BANK INTERNATIONAL DIVISION
MUMBAI

For Further Credit to

ACCOUNT NO: **2722101001741** of IIT Chennai – Swift Code: **CNRBINBBIIT**
OF THE REGISTRAR, IIT, MADRAS

JOINT REGISTRAR (IC & SR) i/c
संयुक्त कुलसचिव (आई.सी. एवं एस.आर.)
JOINT REGISTRAR (IC & SR)

आई.आई.टी. मद्रास

This is to certify that the particulars furnished are correct.

For Canara Bank

Senior Manager
Canara Bank - IIT Madras branch



एस.अरवींदन
S.ARAVINDAN
संयुक्त प्रबंधक Senior Manager
प.अ.सं. S.P.No.31649