



NATIONAL INSTITUTE OF TECHNOLOGY, DURGAPUR

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BID REFERENCE: NITD/CHEMICAL/DST-FIST/2016-17/01

Date: 18.01.2017

To

Dear Sir,

SUB: Invitation for quotations for supply and installation of GC MS under “DST-FIST Grant”

1. You are invited to submit your most competitive quotation for the item as per technical specification given in **Annexure-I**. Superscribe the cover envelope as “**DST-FIST Chemical – GC MS**”. Price bid form as per Annexure-II must be filled with complete numerical values. Please note that each item will include sub-items.
2. **Bid Price (Annexure-II)**
 - a) The contract shall be for the full quantity as described above. Corrections, if any, shall be made by crossing out, initialing, dating and re-writing.
 - b) All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price **F.O.R. Dept. of Chemical Engineering, NIT Durgapur**.
 - c) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
 - d) The bid price must be quoted in **Indian Rupees (F.O.R. Dept. of Chemical Engineering, NIT Durgapur)**.
3. Each bidder shall submit only one quotation for each item. Manufacturer/authorized dealers of reputed brands of high technical quality with adequate after-sales support facilities are eligible to apply. The bidder must have supplied similar good to reputed organizations to their full satisfaction and furnish a list of the same.
4. **The bid submitted by the bidder must comprise the following:**

Part – I (Techno-commercial Bid)

- a. Detailed technical specifications, conforming to the given specifications (vide Annexure – I), and literature /drawings /manuals of the goods/services to be supplied. All specifications offered needs to be supported with original literature or printed catalogue as well as the same literature needs to be available in the website of the manufacturing company.
- b. Authorized dealership certificate from the original manufacturer
- c. Credentials and list of organizations where the bidder supplied similar items
- d. Satisfaction certificates (in original letterhead) of users of the same instrument working in premier national and state government academic and research institutions and universities
- e. **Warranty period (36 months comprehensive on-site). This should include service, consumables and spares An additional 24 months comprehensive warranty after completion of 36 months must also be quoted (as an optional item).**
- f. Valid sales-tax / VAT clearance certificate

Part – II (Price Bid)

- a) Price bid as per Annexure-II

5. Validity of Quotation

Quotation shall remain valid for a period not less than **60 days** after the last date of submission.

6. Evaluation of Quotations

The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e.

- (a) which are properly signed and
- (b) Conform to the terms and conditions, and specifications.
- (c) **The quotations will be evaluated considering the cost of all mandatory / essential items including tax thereon. Price of each optional accessory needs to be quoted for separately and the additional price for extra 24 month warranty must also be indicated.**

7. Award of contract

The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive, technologically acceptable and who has offered the lowest evaluated quotation price.

- 7.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

- 7.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiry of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.

8. Delivery shall be made at **Department of Chemical Engineering, NIT, and Durgapur.**

9. Payment shall be made immediately within 30 days after satisfactory installation, commissioning and successful demonstration of the good.

10. Comprehensive onsite warranty shall be applicable to the supplied goods for the selected period of **36 months / 60 months** from the date of installation as decided by the purchaser.

11. The Institute is **exempted from payment of custom and excise duty** on items mentioned below:

- a) Scientific and technical instruments, apparatus, equipment (including computers)
- b) Accessories, spare parts and consumables thereof
- c) Computer software, CD-ROM, recorded magnetic tapes, microfilms, and microchips.

12. The successful bidder must submit a valid bank guarantee on any nationalized bank of **10%** of the order value towards **Performance Security** during the warranty period before the release of payment.

13. **Liquidated Damage** will be applicable at the rate of **0.5%** per week. The purchaser has the right to cancel the purchase order when LD accumulates to 10 %.

14. A bank draft of **Rs 200** towards the bid document price payable to “**FIST CHEMICAL**” at Durgapur will be enclosed with the bid by the bidder.

15. A bank draft or bank guarantee worth **2%** payable to “**FIST CHEMICAL**” as EMD which shall remain valid for a period of 45 days beyond the final bid validity date. **This should be provided in a separate envelope.**

16. Quotations are to be submitted **in three separate sealed covers** marked **PART-I** (Techno-commercial bid) and **PART-II** (Price bid) and **PART-III**(Bank Draft or Bank guarantee against security deposit) containing relevant documents, superscripting “**Bid No. NITD/CHEMICAL/DST-FIST/2016-17/01**”. These two sealed covers are to be placed in a separately sealed larger cover. It should be superscribed ‘**Not to be opened before 15.30 hours on 20.02.2017**’ on these envelopes.

17. Settlement of any dispute will be made under the jurisdiction of Durgapur Court.

18. You are requested to submit your offer latest by 15.00 hours on **20.02.2017**.

19. The purchaser will open the bids at 15.30 hours on **20.02.2017** in the HOD office of Chemical Engg. Department, NIT Durgapur.
20. The bid document must be signed and sealed and enclosed with the bid as a token of acceptance of all terms and conditions in the bid document by the bidder.
21. The items must be delivered at the respective department within **60 days** from the date of placement of purchase order.
22. A pre-bid conference shall be held in **Dept. of Chemical Engineering, NIT Durgapur** on **31.01.2017** at **3.30 PM**.
23. All other terms and conditions of GFR 2005 of the Government of India will be applicable.
24. **Place of Delivery: Dept. of Chemical Engineering, NIT Durgapur.**
25. **Installation / commissioning / demonstration requirement: Installation, commissioning, complete demonstration of supplier and purchaser's samples (as per applications mentioned in technical specification list) and successful running of the instrument must be demonstrated at Dept. of Chemical Engineering, NIT, Durgapur.**
26. **The technical bid and the price bid must be enclosed in separate envelopes properly sealed by the bidder, and submitted inside a cover sealed envelope, failure to do which may lead to cancellation of the bid by the tender committee.**

We look forward to receiving your quotations.

Head, Dept. of Chemical Engineering.

The bid must be addressed to:
Prof. Anup Kumar Sadhukhan
Head, Department of Chemical Engineering
NIT, Durgapur -713209, W.B.
Telephones: + 91-9434788078

Specification of GC-MS system to be procured under DST – FIST program:

GC system general	<p>(i) GC with electronically Advanced/Electronic/Programmable flow control technology for simultaneous pressure, temperature and flow programming.</p> <p>(ii) Graphical user interface with LCD display.</p> <p>(iii) Capable of accommodating capillary and packed columns.</p> <p>(iv) Flow or pressure set points for each inlet or detector parameter should be from GC control panel and software.</p> <p>(v) All necessary carrier gas for the mentioned samples.</p> <p>(vi) Provision for up gradation of detectors.</p>
Column Oven	<p>(i) Should have an operating range of four degrees above ambient to 450 °C or higher.</p> <p>(ii) Maximum Heating Rate: 120 °C/min or higher</p> <p>(v) Temperature accuracy: +/- 1% or better</p> <p>(vi) Oven cooling speed: 450⁰C to 50⁰C within 4 minute or better.</p>
Injector	Installable: at least two (Provision for upgradation)
Split/splitless injector	<p>(i) Capillary Split/split less injector suitable for all capillary column of 50 micro meter to 530 micro meter internal diameter or better</p> <p>(ii) Maximum operating temperature: 400⁰C or better</p> <p>(iii) split ratio: 0 to 9000 or better</p> <p>(iv) Pressure range: 0 – 100 psi or higher.</p> <p>(v) Capable of operating in efficient gas saver mode to reduce gas consumption during Standby without affecting performance.</p>
Column	<p>Polar, Mid Polar and Non Polar columns (2 No. Each) for the following applications</p> <p>Columns required for</p> <ul style="list-style-type: none"> • Estimation of Triglycerides, Diglycerides, and mono-glycerides concentration in Biodiesel analysis • Estimation of FAME (Fatty Acid Methyl Esters) concentration in range

	<p>C14-C24 in Biodiesel</p> <ul style="list-style-type: none"> Alcohols (20 % ethanol concentration) analysis in Aqueous solution or aldehydes and ketones. Phenol and its derivatives Analysis in Aqueous solution Oil and complex hydrocarbon analysis, Poly aromatic hydrocarbons, Diesel Pesticides and chlorinated pesticides Analysis Humic acid for mass lignin, ionic liquids.
Flame Ionization Detector	<p>(i) Wide range Flame Ionization Detector for GC with auto ignition facility</p> <p>(ii) Minimum detection limit: 1.5 pg C/s or better</p> <p>(iii) Dynamic Range > 10⁷ or better</p>
Thermal Conductivity Detector (TCD)	<p>(i) Temperature range: 400°C or better</p> <p>(iii) Dynamic range: >10⁵ or better</p>
Head Space Sampler	<ul style="list-style-type: none"> 15 vial capacity or more. Syringe Temperature-Room temperature to 150°C or better.
Solid Phase Micro Extraction (SPME)	Polar, Mid polar and Non Polar Probes need to be quoted for multiple sample analysis.
Mass spectrometer with Detector	<ul style="list-style-type: none"> Mass range: : Lower Range 1.5 or better and higher range 1200 or better Ion source type: Inert EI source with variable voltage and adjustable electron energy (0-200 eV) Mass filter : Maintenance free good pre filter Quadrupole. Quadrupole temperature:: Dual Filament system. Temperature of the independently heated quadrupole should be controlled up to 350°C. Scan rate (electronic): : 20,000 amu/sec or better Mass axis stability: : Mass axis stability is 0.10/48 hours. . Vacuum systems: : pump capacity with 170L/sec or better. Oil free pump. EI Scan Sensitivity:: 1500:1 S/N or better (1 pg of Octafluoronaphthalene) EI SIM IDL: 10 fg IDL (instrument detection limit) S/M/Scan mode: Synchronous SIM/ Full Scan mode of operation to enable collection of both SIM data and full scan data in the same acquisition Emission current : up to 350 micro Ampere or better Carrier Gas: Should support He/H₂

	<ul style="list-style-type: none"> Independently heated zones for: transfer line, ion source, and ion optics/mass analyzer
Vacuum system for MS	<p>(i) Evacuation System Control: Fully automatic Turbo Molecular pump</p> <p>(ii) Turbo molecular pump with capacity of 250 L/sec or better</p>
Library for MS system	Latest version of NIST databases (including original CD) with license number from manufacturer.
Other accessories:	<p>(i) Online UPS system: 10 KVA or better with suitable transformer for at least 30 min or better back up facility.</p> <p>(ii) Two each of filled hydrogen, nitrogen, zero air and helium gas cylinder. Purity of the gases must be compatible with the GCMS analysis</p> <p>(iii) one double stage gas regulators for gas cylinders of each kind</p> <p>(v) Gas panel for removal of moisture, oxygen, hydrocarbon and other impurities if present in the gas to be used in GCMS system with necessary tubing, nuts and ferrules to achieve suitable purification of gases to be used for GCMS system.</p> <p>(vi) Adequate number of syringes for different samples.</p> <p>(vii) Standards and reagents for all sample analysis must be provided.</p>
Computer and software to run the GCMS instrument	<p>(i) Branded computer with branded UPS(1.1KV) and laserjet printer (colour) installed software for running the GCMS</p> <p>(ii) The computer should have proper connection with the GCMS instrument for smooth running</p> <p>(ii) With Intel core i5 or better processor</p> <p>(iv) RAM: 8 GB or higher</p> <p>(v) Operating system: Windows 7 or higher version</p> <p>(vi) Hard Disk: 500 GB or higher</p> <p>(vii) DVD ROM with writer</p> <p>(viii) LAN: Ethernet I/F (100BASE – TX / 10 BASE – T)</p>

	<p>(ix) Display: Branded 23" LED colour monitor for an easy viewing</p> <p>(x) Branded USB Keyboard and mouse</p>
Control Software for GCMS system	<ul style="list-style-type: none"> • Software to perform complete instrument control, data acquisition, data evaluation, automation and reporting in the Industry standard Windows/NT environment. • Complete control of the GC-MS system with data acquisition facility along with performance validation of the system, SIM/TIC mode peak purity determination, quantitative and qualitative analysis, library search, auto tuning & calibration. • Should support multi-detector configurations • All method functions should have access through icons. • Should have custom report generator facility • Should have Real time display of all chromatograms. • Should have Dynamic data exchange facility. • Simple-to-use graphical user interface and online tutorial function. • The interface should enables the system setup in minutes. • Should have the display to identify icons and to see the progress of an analysis. • Create cross sample reports and charts using standard or customized formats • latest configuration of computer suitable for total control and operation of GC-MS system with all licensed software required for the system.
Other requirements	<ul style="list-style-type: none"> • All the necessary consumables for calibration of GC-MS to be provided. • Consumable spare parts for five years (the list at least include Injection port glass liners – 10 Nos, GC Septum – 200 Nos, Column inlet/outlet nuts – 10 each, inlet/interface ferrules – 20 each, source insulator, vacuum oil (5 times the oil capacity of turbo molecular pump). • Extra accessories for dust free chilled environment for proper functioning of the instrument.
Optional Items	<p>Electron Capture Detector compatible with the GCMS instrument preferably with the following features:</p> <p>I. Temperature Range: up to 350⁰ C</p> <p>II. Minimum Detected Quantity (Sensitivity): 6 fg/s (or better)</p> <p>III. Dynamic Range: >10⁴ or better</p> <p>Auto Injector/Sampler</p> <p>12 vial capacity or more.</p>