 Indian Institute of Technology Madras

Chennai-600 036

Department of Civil Engineerin

Ref No: CIE/2015/ Spectrometer/SPLX dated 10.08.2015

To

 DUE DATE : 02.09.2015

Sir/Madam

1. Quotations are invited **in duplicate (Two bidding covers)**for the **item/s shown as per enclosed Specifications**.

2. The quotations duly sealed and superscribed on the envelope with the enquiry reference No. & due date should be addressed to the **Head of the Department, and contain in 2 bid system i.e. Technical bid and Commercial bid in two separate envelopes and these two envelopes should be enclosed in a Single envelope so as to reach on or before the due date.**

3. The quotation should be valid for **(60) Sixty days from the due date and period of delivery time** required.

4. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the quotations, **wherever applicable**. Samples if called for, submitted free of charge and collected back at the suppliers expenses.

5. Firms outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train/lorry transport must be indicated. If Ex-godown, packing Forwarding and Freight charges must be indicated.

6. Local Firms: Quotations should be for free delivery to this Institute. If quotations are for Ex-godown, delivery charges should be indicated separately.

7. Goods should be **supplied** by **carriage paid and insured**.

8. Goods shall not be supplied **without an official supply order**.

9. PAYMENT: The mode of payment should be mentioned**.**

10. Rate of Sales/General Taxes and percent of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Wherever this is not done, no claim for any taxes will be admitted at any stage and any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax applicable to Non-Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificates will be issued at the time of final settlement of the bill. The Price should be quoted without Excise Duty, Since IIT Madras is exempt from payment of Excise duty.

11. Warranty period: Explicitly Warranty period is to be given by the firms.

 Yours sincerely

 For Head of the Department

**Technical Specification for Multi Functional Spectrometer System**

System should be designed and manufactured under ISO-9001 and should comply with international regulatory, safety and electromagnetic compatibility requirement. The multi functional spectrometer data system should be based on Microsoft Windows operating system for instrument control, data acquisition and data analysis.

**Core Specifications:**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Specifications** | **Descriptions** |
| 1 | One vendor solution and Detection mode | The multi functional spectrometer must be manufactured, supplied and installed by a single vendorA Monochromator based multi-detection micro plate reader that can perform UV-Vis Absorbance, Fluorescence Intensity, Glow Luminescence or better as primary mode detection. System must have further option to upgrade to TRF and better chemistry is mandatory.  |
|  |

**General Photometric Specification:**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Specification** | **Descriptions** |
| 1 | Light source | Xenon flash lamp or better  |
| 2 | Monochromator | Dual monochromator or better;Excitation 200 – 850 nm or better |
| 3 | Detector  | Photomultiplier tubes or better combination |
| 4 | Plate and Cuvette format &Plate reading time | 6 to 384 well plates and vertical cuvette mode measurement for absorbance, fluorescence and luminescence measurements ≤ 30 sec for 96 well plates or better & ≤ 60 sec or better for 384 well plate |
| 5 | Shaker time  | Linear & orbital with adjustable speed and time (0 to 999 sec) |
| 6 | Temperature control and accuracy | 2°C above ambient to 50°C or better; ± 1°C |

**Absorbance Photometric Specification:**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Specifications** | **Descriptions** |
| 1 | Reading Capabilities  | Cuvette and micro plate  |
| 2 | Wavelength range  | 200-1000 nm or better |
| 3 | Wavelength selection  | Monochromator tunable in 1.0 nm increments or better  |
|  | Path length correction | Should support in software/hardware or both  |
| 4 | Photometric range  | 0 to 4 OD or better |
| 5 | Photometric Resolution  | 0.001 OD or better |

**Fluorescence Specification:**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Specifications** | **Descriptions** |
| 1 | Reading Capabilities  | Cuvette and micro plate (top & better mode of detection) or better |
| 2 | Wavelength range  | 230-850 nm or better |
| 3 | Wavelength selection  | Monochromator tunable in 1.0 nm increments or better  |
| 4 | Bandwidth (EX, EM)  | 9 nm or better; 15 nm or better |
| 5 | Sensitivity  | < 5 Pm or better Fluorescein with 96 & 384 well plate reading  |
| 6 | Auto PMT | System with Automatic Photomultiplier Tube (PMT) setting is preferable |

**Luminescence Specification:**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Specifications** | **Descriptions** |
| 1 | Reading Capabilities  | Cuvette or top of a micro-plate |
| 2 | Wavelength range  | 230-850 nm or better |
| 3 | Wavelength selection  | All wavelengths or with selected wavelengths |

**Other Accessories**

Pack of 25 micro plates and micro cuvette (0.5 mL) for Absorbance, Fluorescence intensities and Luminescence should be supplied along with system.

**Data Acquisition**

1. Software integrated system, which provides data acquisition, analysis and management capabilities allowing cross-plate analysis and custom calculations. The system should have a temperature independent path check technology built in hardware and software to reproduce the data similar to that of 96 and 384 cuvettes values as in spectrophotometer and without a need to export the data to a spreadsheet.
2. The system must be provided with a set of installation, operating and troubleshooting manuals both in paper and software forms.
3. A suitable PC compatible for the above instrument control should be supplied along with the instruments. The PC should meet the minimum requirements such as desktop with i-5 Processor, 8 GB RAM, HD 500 GB or more, Windows 7 home basic or better and 24’’ or more LED monitor.
4. Minimum 2 years warranty with 1 or 2 year free service will be preferred
5. A service center must be available in Chennai for service engineers to attend to the instrument for maintenance or troubleshooting.
6. On-site training for the operation of the hardware and software systems should be included.