भारतीय प्रौद्योगिकी संस्थान तिरुपति
TIRUPATI

Indian Institute of Technology Tirupati

भारतीय प्रौद्योगिकी संस्थान तिरुपति

Venkatgiri Road, Yerpedu - 517 619, A.P.

वेंकटगिरी रोड, येरपेडु - 517 619, ए.पी

Tender No. IITT/CI/2023-24/18/Corr-III **Date: 21-12-2023**

CORRIGENDUM – III

Sub: Corrigendum for the Supply and Installation of Field Emission Scanning Electron Microscope (FE-SEM) with other accessories

Ref: 1) Tender No. IITT/CI/2023-24/18 dated 13.11.2023

2) Corrigendum-I ref no: IITT/CI/2023-24/18/Corr-I dated 11-12-2023

3) Corrigendum-II ref no: IITT/CI/2023-24/18/Corr-II dated 18-12-2023

With reference to the Tender No. IITT/CI/2023-24/18 dated 13.11.2023 for Supply and Installation of Field Emission Scanning Electron Microscope (FE-SEM) with other accessories, the competent authority is pleased to issue the following corrigendum. This should be read along with the other terms & conditions as already published in the CPP & website.

1. Critical Dates of Tender:

S. No.	Details	In the place of		To be read as	
1	Bid submission close date & time	28-12-2023	15:00 hrs	01-01-2024	15:00 hrs
2	Closing date	28-12-2023	15:00 hrs	01-01-2024	15:00 hrs
3	Opening of Technical bids	29-12-2023	15.00 hrs	02-01-2024	15:00 hrs

2. Technical Specifications: Schedule of requirement

S. No.	Parameter	In the place of	To be read as
1.	**Resolution** [Page no: 2]	• The following resolution specifications must be met: a) 0.6 nm or better at 15kV b) 0.8 nm or better at 1kV c) 0.6 nm or better at 30 kV STEM mode d) 1 nm or better at 1kV In-lens BSE • The resolution specifications should be	• The following resolution specifications must be met: a) 0.6 nm or better at 15kV b) 0.8 nm or better at 1kV c) 0.6 nm or better at 30 kV STEM mode d) 1 nm or better at 1kV In-lens BSE • The supplier must provide

		achieved without any stage or sample bias. • The supplier must provide globally accepted documents for the resolution claim. • The mentioned resolution should be tested and proved by the supplier immediately after installation at site. • The methodology for testing the resolution should be as per ISO/TS 24597 standard. The quoted resolution should be the average value and not the best value. All technical literature pertaining to the instrument such as the catalogues and other documents proving the claimed technical specification should be furnished along with the bid document and must be available in public domain.	globally accepted documents for the resolution claim. • The mentioned resolution should be tested and proved by the supplier immediately after installation at site. • The methodology for testing the resolution should be as per ISO/TS 24597 standard. The quoted resolution should be the average value and not the best value. All technical literature pertaining to the instrument such as the catalogues and other documents proving the claimed technical specification should be furnished along with the bid document and must be available in public domain.
2	**Magnification** [Page no: 2]	• From 10x to 20,00,000x, or better	• From 20x to 20,00,000x or better, with or without the aid of a navigation camera.
6	**Mode of Operation** [Page no: 2]	• The system should be capable of operating in high vacuum mode where the chamber pressure should be 10-6 mbar, or better. • Computer controlled and pneumatic operated valves and protection from high voltage and vacuum failures. • Isolation valves for specimen chamber and high vacuum system during sample loading. • Suitable system having Ion Getter Pump, Turbo Molecular Pump and Oil free Rotary Pump for hassle free operation. • Fast vacuum recovery after breaking for specimen exchange.	• The system should be capable of operating in high vacuum mode where the chamber pressure should be 10-6 mbar, or better. • The imaging of beam sensitive samples should be possible in its native condition itself without causing any damage to the sample. • Computer controlled and pneumatic operated valves and protection from high voltage and vacuum failures. • Isolation valves for specimen chamber and high vacuum system during sample loading. • Suitable system having Ion Getter Pump, Turbo

			Molecular Pump and Oil Free Rotary Pump for hassle free operation. • Fast vacuum recovery after breaking for specimen exchange.
12	**EDS** [Page no: 3]	• The EDS system should be state-of-the-art and designed to comply with the ISO 15632:2012. • The EDS system should be seamlessly integrated with the proposed FESEM system. • The EDS detector should be based on an SDD sensor having a sensor area of atleast 100 mm2. • The EDS system should have an energy resolution less than 127eV at count rate of 100,000 cps on Mn-kα which is to be guaranteed at site. • The EDS system should be stable and should be such that the shift in peak position and width should be less than 1eV at 100,000 cps or better. • A motorized slide should be available in the EDS detector that can be controlled both manually and by software. • A licensed software should be supplied along with the EDS system. The software should have features such as live imaging, live mapping, live spectrum, and live auto peal labelling. All these software features should be available in real time mode. • The EDS software must be able to do quantitative and qualitative analysis. The EDS software must have functions like mapping, point ID and line scan. Built-in report templates and simultaneous imaging	• The EDS system should be state-of-the-art and designed to comply with the ISO 15632:2021. • The EDS system should be seamlessly integrated with the proposed FESEM system. • The EDS detector should be based on an SDD sensor having a sensor area of atleast 100 mm2. • The EDS system should have an energy resolution less than 127eV at count rate of 100,000 cps on Mn-kα which is to be guaranteed at site. • The EDS system should be stable and should be such that the shift in peak position and width should be less than 1eV at 100,000 cps or better. • A motorized slide should be available in the EDS detector that can be controlled both manually and by software. • A licensed software should be supplied along with the EDS system. The software should have features such as live imaging, live mapping, live spectrum, and live auto peal labelling. All these software features should be available in real time mode. • The EDS software must be able to do quantitative and qualitative analysis. The EDS software must have functions like mapping, point ID and line scan. Built-in report templates and simultaneous imaging and analysis on the EDS monitor should be possible.

		and analysis on the EDS monitor should be possible.	
13	**EBSD** [Page no: 4]	• The EBSD system should consist of the EBSD camera/detector, control electronics and the system software. • The proposed EBSD system should be compatible with the EDS system. There should be a provision for simultaneously acquiring EDS and EBSD data from multiple fields over large sample surfaces and to automatically align the images using correlation techniques and stitch the mapped images during data acquisition itself. • The EBSD camera system should have a resolution of 600 x 500, or better for HR EBSD measurements. The system must be capable of having an indexing speed of 2000 patterns per second, or better. • There should be a proximity sensor that can detect possible collision of the EBSD detector with the sample. • The control of EBSD camera should be possible both manually and using the system software. • The system software should be supplied with atleast one additional offline license. • The system software should include following features: a)Data acquisition b) Indexing algorithms c) Auto tilt correction d) Phase reflector file creation e) Mapping	• The EBSD system should consist of the EBSD camera/detector, control electronics and the system software. • The proposed EBSD system should be compatible with the EDS system. There should be a provision for simultaneously acquiring EDS and EBSD data from multiple fields over large sample surfaces and to automatically align the images using correlation techniques and stitch the mapped images during data acquisition itself. • The EBSD camera system should have a resolution of 600 x 450, or better for HR EBSD measurements. The system must be capable of having an indexing speed of 2000 patterns per second, or better. • A suitable mechanism should be provided to detect possible collision of the EBSD detector with the sample even before the actual collision occurs. • The control of EBSD camera should be possible both manually and using the system software. • The system software should be supplied with atleast one additional offline license. • The software/system should have features to improve signal to noise ratio in EBSD patterns, to improve indexing success rate, and to operate at lower beam currents without reducing collection speeds. • The system software should include following features: a) Data acquisition b) Indexing algorithms c) Auto tilt correction

		f) Texture analysis g) Imaging and Beam Control h) Stage control i) Phase identification j) ICSD Data Base	d) Phase reflector file creation e) Mapping f) Texture analysis g) Imaging and Beam Control h) Stage control i) Phase identification j) ICSD Data Base k) A quantified measurement of the data quality

3. Delivery Schedule:

S. No.	Condition	In the place of	To be read as
1.	**Delivery Schedule (Tender Clause No. 17)** [Page no: 17]	17.1 The successful bidder should execute the order successfully i.e. Supply, Installation of ordered items within **18 weeks** at IIT Tirupati from the date of issue of the purchase order. In case of any damage/Broken/Expired items found, the item(s) should be replaced **within 15 days** at IIT Tirupati. The bidder has to make own arrangement for unloading and positioning of items at the desired location of IIT Tirupati.	17.1 The successful bidder should execute the order successfully i.e. Supply, Installation of ordered items within **6 months** at IIT Tirupati from the date of issue of the purchase order. In case of any damage/Broken/Expired items found, the item(s) should be replaced **within 15 days** at IIT Tirupati. The bidder has to make own arrangement for unloading and positioning of items at the desired location of IIT Tirupati.

The last date for submission of quotations (two bids) against our tender is extended to **01/01/2024 upto 03.00 p.m.**

All other terms and conditions of the tender document will remain the same.

Sd/-

Assistant Registrar (P&S)