



Indian Institute of Technology Jodhpur

N.H. 62, Nagaur Road, Karwar, Jodhpur - 342030, Rajasthan (India)

☎ 0291-2801552 | ✉ office_materials@iitj.ac.in

Website: Department: <https://www.iitj.ac.in/materials-engineering> | IITJ: www.iitj.ac.in

INDIAN INSTITUTE OF TECHNOLOGY JODHPUR

Request For Technical Information and Pro Forma Quotations

For Procurement of X-ray photoelectron spectrometer (XPS)

1. Introduction

The Indian Institute of Technology Jodhpur (IIT Jodhpur) intends to procure **X-ray photoelectron spectrometer (XPS)** for academic and research purposes.

Before initiating the formal procurement process, the Institute invites **Technical Information and Indicative Pro Forma Quotations** from eligible Original Equipment Manufacturers (OEMs) or their authorized representatives.

2. Purpose

The objectives are to:

- Obtain technical information from prospective OEMs/authorized representatives.
- Obtain indicative Pro forma quotations for estimating the procurement cost.

3. Disclaimer

This document is issued **only for obtaining technical information and indicative Pro Forma quotations**.

Submission of information under this proposal:

- shall **not** be treated as a financial bid;
- shall **not** constitute any commitment on the part of IIT Jodhpur to procure the equipment;
- shall **not** confer any right upon the participating firm for award of any future contract;
- shall **not** automatically qualify the responding firm for participation in any future tender.

The Institute reserves the right to modify the technical specifications, estimated cost, procurement methodology, or procurement timeline based on its requirements.

4. Equipment Details

- Name of Equipment: X-ray photoelectron spectrometer (XPS)
- Quantity: 01
- Broad Functional Requirements (The essential functions or capabilities that the equipment should have, without mentioning a specific make, model, or brand):



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The broad functional requirements are indicative and may be revised by the Institute after evaluation of the technical information received from prospective suppliers.

S. No.	Parameter	Requirement
1	General Requirements	- The offered instrument shall be a fully automated, research-grade X-ray Photoelectron Spectroscopy (XPS) system for qualitative and quantitative surface chemical analysis. - The system shall be capable of XPS imaging, survey scans, high-resolution spectroscopy, elemental mapping, chemical-state imaging, depth profiling, and angle-resolved XPS. - The system shall analyze metals, alloys, semiconductors, ceramics, oxides, polymers, biomaterials, magnetic materials, catalysts, thin films, glasses, and insulating materials. - The instrument shall be the latest commercially available model.
2	Vacuum System	- Two- or three-chamber UHV configuration comprising: - Analysis chamber - Load-lock chamber - Automated load-lock pumping. - Turbo molecular pumping with suitable backing pumps. - Base pressure after bake-out: $\leq 1 \times 10^{-7}$ Pa - Computer-controlled vacuum monitoring. - Combination vacuum gauges for all chambers.
3	Analysis Chamber	- Chamber manufactured using materials suitable for ultra-high vacuum and magnetic shielding. - Integrated optical viewing system. - Multiple in-vacuum parking positions. - Fully automated vacuum control.
4	X-ray Source	- Monochromated $K\alpha$ source. - Dual anode or equivalent upgradeable system preferred. - X-ray power: ≥ 300 W - Acceleration voltage: ≥ 10 kV - Minimum X-ray spot size: $\leq 50 \mu\text{m}$
5	XPS Performance	
	Parameter 1: Ultimate energy resolution 2: Large area sensitivity 3: Small spot sensitivity 4: Chemical-state imaging 5: Mapping capability	Requirement 1. ≤ 0.5 eV 2. ≥ 400 Kcps @ 1 eV 3. High sensitivity at $\leq 50 \mu\text{m}$ spot 4. $\leq 5 \mu\text{m}$ 5. High-speed elemental & chemical mapping
6	Electron Energy Analyzer	- Hemispherical analyzer. - Mean radius: ≥ 130 mm.



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		- Energy range: upto 1500 eV. Suitable for: - XPS - UPS - Upgradable for REELS & ISS
7	Detector	- Multichannel detector. - Parallel detection. - Suitable for spectroscopy and imaging
8	Sample Stage	Fully automated five-axis manipulator - X - Y - Z - Rotation - Tilt Requirements - Automatic Z optimization. - Angle-resolved XPS capability. - Multiple sample holders.
9	Sample Viewing	- Global sample view. - High-magnification microscope. - Software-assisted navigation. - Fast position selection for XPS imaging
10	Sample Transfer	- Fully automated transfer from load-lock to analysis chamber. - Parking stations inside the chamber. - Vacuum transfer module (Optional)
11	Charge Neutralization	- Electron neutralizer. - Low-energy ion neutralizer or equivalent. - Fully software controlled. - Suitable for conductive and insulating samples.
12	Monoatomic Ion Gun	- Argon ion source. - Beam energy: 0.5–5 keV. - Beam rastering. - Automated depth profiling. - Synchronization with XPS/UPS measurements.
13	Cluster Ion Gun (Upgradeable)	Upgradeable to - Ar cluster ion source. - Cluster energy suitable for soft material sputtering.
14	C-60 Ion Gun (Upgradable)	Upgradeable to C-60 cluster ion gun
15	XPS Mapping	- Parallel imaging. - Chemical-state imaging. - Elemental mapping.



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		• Depth profiling • Qualitative and quantitative mapping • Automated image acquisition.
16	Automation	System shall provide • Automated vacuum control. • Sample handling. • Sample height optimization. • Survey scans. • High-resolution scans. • Peak identification. • Quantification. • Calibration. • Reporting. • Multi-user operation.
17	Calibration	Automatic software-controlled calibration for • Energy scale • Analyzer transmission • Detector • Electron optics • Ion gun • Permanent calibration standards.
18	Software (Non profit)	Software shall support • Survey scans • Multiplex scans • Depth profiling • Line scans • Elemental mapping • Chemical-state imaging • Angle-resolved XPS • Peak fitting • Quantification • Shirley/Tougaard background • Curve fitting • Batch measurements • Automatic reporting • Offline analysis licenses
19	UPS Module	System shall include UPS Requirements • He I • He II • Software-controlled lamp • Automatic gas handling • Differential pumping
20	REELS	Upgradeable or included. System shall support • Bandgap determination. • Polymer characterization. • Automated switching. • High sensitivity



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21	ISS	Upgradeable or included. Suitable for • Outermost atomic layer analysis. • Surface segregation. • Surface contamination studies.
22	Accessories	Supply shall include • Calibration standards (Au, Ag, Cu) • Sample holders • Tilt holder • Multi-sample holder • Phosphor alignment sample • Chiller • Complete toolkit • UPS for ≥ 1 hr power backup • User manuals
23	Computer	Latest workstation • Intel Core i7 or better • 32 GB RAM or higher • 1 TB SSD • 24-inch monitor • Windows 11 Professional • Network enabled • Remote diagnostics
24	Safety	• High-voltage interlock • Vacuum interlock • Cooling interlock • Door interlock • Bake-out protection • Emergency shutdown
25	Upgradeability	The system shall be field-upgradable to include: • Cluster ion source • Hard X-ray Photoelectron Spectroscopy (HAXPES) • Third preparation chamber • Quasi in-situ reaction chamber • High-pressure cell • AES • IPES • REELS • ISS • Automated vacuum transfer • Heating/cooling sample stages
26	Installation & Training	• Installation and commissioning by OEM-trained engineers. • Factory acceptance test (if applicable). • Site acceptance test. • Trained operator for 3 years. • Minimum 5 days onsite user training for 5 users. • Additionally, an advance training should be provided after 6 months of first training.



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27	Warranty & Service	• Minimum 3 years comprehensive onsite warranty. • Spare parts support for at least 10 years. • Preventive maintenance during warranty. • Remote diagnostics. • Local service support. • Additionally, 3-year AMC after warranty should be provided
28	Vendor Qualification	• The OEM or authorized representative shall have installed at least five comparable high-resolution XPS systems in India at reputed academic institutions, national laboratories, or government R&D organizations in the last five years. • The bidder shall provide installation references, contact details, and documentary evidence of successful installation and commissioning.

5. Eligibility Criteria

Interested firms should:

- Be an Original Equipment Manufacturer (OEM) or an authorized distributor/dealer.
- Have experience in supplying similar equipment.
- Have adequate installation and after-sales service support in India.

6. Information/Documents to be Submitted

The interested firms shall submit the following (*Annexure-I*):

1. Company Profile.
2. Details of the OEM.
3. Product Brochure/Catalogue.
4. Detailed Technical Specifications.
5. Compliance with the Broad Functional Requirements.
6. List of previous users/clients with installation reports
7. Details of Warranty.
8. Details of After-Sales Service Support.
9. Authorization Letter from OEM (where applicable).
10. Any additional technical information relevant to the offered equipment.

7. Pro forma Quotation

- Interested firms are requested to submit a Pro forma Quotation (*Annexure-II*) along with their Request For Technical Information and Pro Forma Quotations response. Indicative **Pro Forma** quotation in Indian Rupees (INR), including the cost of the equipment, essential accessories, taxes, duties, freight, insurance, installation, commissioning, training, and any other associated charges.



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Wherever applicable, the Annual Maintenance Contract (AMC) and/or Comprehensive Maintenance Contract (CMC) charges and spare parts shall be quoted separately as additional charges.

- Expected delivery schedule and other relevant technical and commercial information.

Important Note:

- The **Pro Forma** quotation is required only for cost estimation and budget planning purposes.
- The prices quoted shall be indicative/non-binding.
- The Pro Forma quotation shall not be treated as a financial bid.
- Submission of a **Pro Forma** quotation shall not confer any right or preference in the subsequent procurement process.

8. Presentation/Demonstration

The Institute may invite for a technical presentation or product demonstration. The date and venue shall be communicated separately.

9. Submission:

Interested firms may submit their Proforma Quotations on or before the due date in sealed cover or through email (as applicable).

The envelope/email should be superscribed as:

"Request For Technical Information and Pro forma Quotations for Procurement of X-ray photoelectron spectrometer (XPS)"

8. Important Dates

Activity	Date
Publication	04 Aug. 2026
Last Date for Submission	12 Aug. 2026
Technical Presentation (if required)	To be informed
Clarification Meeting (if required)	To be informed

10. General Terms & Conditions

1. This **Request For Technical Information and Pro forma Quotations** is issued only for obtaining technical information and **Pro Forma** estimates.
2. The Institute reserves the right to accept or reject any or all responses without assigning any reason.
3. Submission of an **Request For Technical Information and Pro forma Quotations** does not create any contractual obligation.



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4. The Institute may seek additional information, technical clarifications, demonstrations, or presentations from any participant.
5. The Institute may modify the technical requirements based on the responses received.
6. The final technical specifications may be prepared by the User Committee after evaluating all **Request For Technical Information and Pro forma Quotations** responses.
7. The subsequent procurement, if any, shall be carried out through an appropriate procurement method in accordance with the GFR 2017 and applicable procurement rules.
8. Participation in this **Request For Technical Information and Pro forma Quotations** does not automatically entitle any firm to participate in or receive any preference during the subsequent tender process.

11. Contact Details:

Name: Dr. Ravi Prakash Srivastava

Designation: Assistant Professor

Department: Materials Engineering

Email: ravip@iitj.ac.in



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Annexure-I

Request For Technical Information and Pro forma Quotations Response Format

1. Name of the Firm:
2. Registered Address:
3. Name of OEM (if applicable):
4. Contact Person:
5. Email:
6. Phone:
7. Product Name and Model:
8. Brief Technical Description:
9. Compliance with Broad Functional Requirements:
10. List of previous users/clients with installation reports:
11. After-Sales Service Details:
12. Any Additional Features:
13. Remarks (if any).



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Annexure-II

Format for Pro forma Quotation

Sl. No.	Description	Amount (INR)
1	Indicative Pro forma quotation in Indian Rupees (INR), including the cost of the equipment, essential accessories, taxes, duties, freight, insurance, installation, commissioning, training, and any other associated charges.	

Warranty Period: _____

AMC/CMC Charges (after warranty): _____

Delivery Period: _____

Authorized Signatory

Name: _____

Designation: _____

Company Seal & Signature