**REQUEST FOR QUOTATION (RFQ)**

Date:

To: \_\_\_\_\_\_\_\_\_\_\_\_

Gentlemen/Ladies:

Regarding: (IDB Financing Agreement) **Project No. TA Grant Agreement 3PAK-0163**

1. You are invited to submit your price quotation (s) in a Proforma invoice format for the supply of the following items:
2. Photoluminescence (PL) System
3. 6 inch Sun Simulator
4. 6 inch Mask Aligner
5. Single Channel Compact High Resolution Thickness Monitor / Controller
6. Compact / Desktop PECVD System
7. Compact / Desktop Magnetron Plasma Sputtering Coater with Vacuum Pump & Water Chiller
8. Compact/Desktop X-ray Orientation Machine for Single Crystal Orientation Measurement
9. Scanning Electron Microscopy (SEM)
10. Information on technical specifications and required quantities is contained in Attachment-I
11. The International Islamic University Islamabadhas been awarded with the research grant from the *Islamic Development Bank (IDB), KSA* towards the cost of *Establishment of Photovoltaic Energy Engineering Laboratory (PEEL)* and now invites the bids from eligible bidders for procurement of above mentioned equipment(s)
12. Eligible Bidders are invited to participate into this bidding exercise except:
	* + A firm, which has been engaged to provide consulting services for the preparation or implementation of a project, and any of its affiliates, shall be disqualified from subsequently providing goods, works, or services resulting from or directly related to the firm's consulting services for such preparation or implementation.
		+ A firm declared ineligible by the World Bank
13. You may quote for any item in this invitation. Each item shall be evaluated and contract awarded separately.

6. Your quotation(s) in the required format should be addressed to

*[OFFICE OF RESEARCH INNOVATION & COMMERCIALIZATION (ORIC)]*

*[Muhammad Adnan Khan].*

*[Room No. 136, 1st Floor, Admin Block,*

*New Campus, International Islamic University*

*Sector H-10, Islamabad]*

*Tel: +92 51-9257913 Fax: +92 51-9258072*

*e-mail:Muhammad.adnan@iiu.edu.pk*

7. The Proforma invoice, in duplicate and in English language, should be accompanied by adequate technical documentation and catalogue(s) and other printed material or pertinent information (in English language) for each item quoted, including names and addresses of firms where such machines/facilities are provided by the supplier/manufacturer.

8. The deadline for receipt of your quotation is \_\_\_\_\_\_**22 OCTOBER 2016**\_\_\_.

9. Quotations by Surface mail, Fax ***OR*** e-mail (muhammad.adnan@iiu.edu.pk) are acceptable.

10. Other Conditions of Supply are as follows:

(i) **PRICES** quoted in different currencies will be evaluated after converting them into PKR (local currency) at the exchange rate prevailing at the State Bank of Pakistan on the date of evaluation.

(ii) **PAYMENT**

Payment shall be made against submission of Invoice with delivery of Goods in favor of the Suppliers Bank.

Payment shall be made within 60 days against submission of Invoice and supporting documents following delivery of the Goods & inspection *(testing / commissioning)* of the equipment(s) at the purchaser’s premises and issuance of acceptance certificate.

(iii) **DELIVERY** prices should be quoted for delivery (***CIP*** *Benazir Bhutto International Airport Islamabad-Pakistan*) according to INCOTERMS, 2010 **AND**

**Ex-factory** for domestically supplied goods. Where, 100% payment will be made after delivery & inspection *(testing / commissioning)* of the equipment(s) at the purchaser’s premises and issuance of acceptance certificate.

(iv) **DELIVERY SCHEDULE** \_not exceeding 4 (four) months from the issuance of Purchase Order (In case of domestically supplied goods)

(v) **WARRANTY** Goods offered should be covered by Manufacturer’s warranty for at least 12 (twelve) months from the date of delivery to purchaser. Please specify period and terms in detail.

(vi) **ORIGIN** Goods offered should have their origin from the eligible countries and you will be required to furnish a certificate of origin for each item for which you quote.

(vii) **VALIDITY** your quotation should be valid for a period of 90 (ninety) days from the date of your quotation.

11. Further information can be obtained from:

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| ***Muhammad Adnan Khan****Addl. Director (ORIC)**[Room No. 136, 1st Floor, Admin Block,* *New Campus, International Islamic University**Sector H-10, Islamabad]**Tel: +92 51-9257913 Fax: +92 51-9258072**e-mail:Muhammad.adnan@iiu.edu.pk* | **Prof. Dr. Ahmed Shuja Syed**Advisor to the Rector & President (Engineering Programs) & *Principal Investigator IIU-IDB Photovoltaic Energy Engineering Laboratory Project*Ibn-Khaldoon Block, International Islamic University, H-10, Islamabad, Pakistan. Tel:+92-51-9019453; +92-51-9019927Fax: +92-51-9258019E-mail: ahmed.shuja@iiu.edu.pkWeb: <http://www.iiu.edu.pk/aelp> |

12. Please confirm by fax OR e-mail the receipt of this invitation and whether or not you will submit the price quotations.

Sincerely,

**Muhammad Adnan Khan**

Addl. Director (ORIC)

**Attachment 1**

**QUOTATION FORM**

Project Name: **Establishment of Photovoltaic Energy Engineering Laboratory (PEEL)**

Company Name: International Islamic University, Islamabad. Pakistan

RFQ No.: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Project Objectives**

The overall objective of the grant is to support the efforts of the Government of Pakistan in building critical mass of skilled human resources-professionals and researchers-in the field of energy engineering with a special focus on solar energy. The establishment of Photovoltaic Energy Engineering Laboratory (PEEL) and capacity building of education for energy sector, at International Islamic University, Islamabad (IIUI), will serve the higher education and research work in the field of photovoltaic (PV) technology on international standards.

**Project Location**

The PEEL will be located in the new campus of the IIUI in Islamabad-Pakistan. The laboratory will be part of the Centre of Excellence in Advanced Electronics at the IIUI.

**Procurement of Advance Equipment and Supplies**

In order to reverse engineer existing technologies and further the research in new areas, the lab will be equipped with the following advance instruments and equipment for design, characterization, fabrication, and processing of PV surfaces and their usage in PV solar cells.

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| **LOT NO.** | **EQUIPMENT** | **Major Specifications** | **Qty. (Unit)** | **Unit Cost (Currency)** | **Total Cost (Currency)** |
| **LOT-1** | Single Channel Compact High Resolution Thickness Monitor/Controller | with Input power (220 V, 50/60 Hz); Thickness range (0 to 999 nm); Film thickness resolution (0.1 Angstrom/s); Crystal frequency (6 MHz with resolution of 0.03 Hz); Quartz crystal oscillator, crystal probe holder, display | **01** |  |  |
| Compact/Desktop Plasma Enhanced Chemical Vapour Deposition (PECVD) System  | with 3" substrate diameter; quartz chamber; internal heating coil; two channel gas mixing & delivery system; a vacuum pump; sample heating zone of plasma furnace up to 400°C via a programmable temperature controller | **01** |  |  |
| Compact/Desktop Magnetron Plasma Sputtering Coater with Vacuum Pump & Water Chiller | with Input voltage (220 V); Input power (close to 2000W); Output power (1600 VDC); Specimen chamber (Fused glass tube system); Substrate (minimum 50 mm diameter); Cooling device integrated with the machine | **01** |  |  |
| **LOT-2** | Photoluminescence System (PLS) | with laser (~325 nm; HeCd for instance; ~30 m W), spectrometer (50mm focal length), lock in amplifier, optical chopper, PMT/CCD, Sample holder stage, refrigerator and accessories (mirrors, post, holder and adapter), optical table; Electro-luminescence test enabled (as an option) | **01** |  |  |
| **LOT-3** | 6 inch Sun simulator class AAA  | with solar test fixture, air compressor/vacuum pump (optional); Simulator Class AAA (ASTM, JIS);Illuminated Area: minimum 6”x6”; Irradiance range: 0.7-1.1 suns; Uniformity of irradiance: +/-2%; Long term stability: 2%; sun simulator xenon lamp : 1000W/Intensity: Min. 100 m W/cm2 ; 110/240 VAC, 50/60 Hz, 10 A max; Built-in manual shutter with lapsed timer meter | **01** |  |  |

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| **LOT-4** | 6 inch Mask Aligner | with UV light source, Top side microscope system (with zoom magnification range from 50-300 times), alignment stage (X, Y, Theta and Z adjustment), operating interface (manual or automatic control); Vacuum Chuck minimum 6” and relevant accessories | **01** |  |  |
| Scanning Electron Microscopy (SEM) | with Electron optics column, operation and display console, SEM control and operation system, Full-automatic vacuum system (diffusion or molecular pump and accessories), Air Compressor, Standard Consumables) Resolution: not less than 3nm; Magnification: 6x ~300,000x; Accelerating Voltage: 0-30kV; Specimen Chamber for WDS, EDS, BSE detectors and other attachments installation | **01** |  |  |
| Compact/Desktop X-ray Orientation Machine for Single Crystal Orientation Measurement | with Power (220-240 V, 50/60 Hz); X-ray tube (Cu target for instance); Max. tube current (~35 KV, 5 m A); X-ray detector (Max. Voltage at ~1000 V); Measurement range (2 Theta 10 to 140 degrees) | **01** |  |  |