DR. S. S. BHATNAGAR UNIVERSITY INSTITUTE OF CHEMICAL ENGINEERING AND TECHNOLOGY, PANJAB UNIVERSITY, CHANDIGARH

No. SSBUICET/TEQIP-III/2019/275
Date: 27.05.2019

To,

Sub: Inviting Quotations for purchase of Trinocular Microscope for transmitted and reflected light, for material and Bio applications, Digital Camera system and Imaging Software.

Dear Sir/Madam,

You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at **Annexure I,**

Sr. No	Brief Description	Quantity	Delivery Period(In days)	Place of Delivery	Installation Requirement (if any)
1	Trinocular Microscope for transmitted and reflected light, for Material and Bio Applications, Digital Camera and Imaging software	1	30	Dr. SSBUICET , Panjab University, Chandigarh	will be done at site

1. Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality ImprovementProgramme[TEQIP]-Phase III** Project and intends to apply part of the proceeds of this creditto eligible payments under the purchase for which this invitation for quotations is issued.

2. **Quotation: -Should be submitted under two bid system(Technical and Financial Bid).**

   The Technical bid envelop will contain following documents.

   i. Make and Model offered, its features and complete specifications
   ii. Universities/Institutes to whom this equipment has been supplied in last two years ending March 31, 2019 and name of the contact persons along with their phone no's
   iii. The turnoverof the company /firms for the last three years ending March 31, 2019.
   iv. Name of your Principal supplier/ Manufacturer.

Note: Price should not be indicated in the Technical bid otherwise the bid will be rejected

3. **Financial bid envelop will contain financial bid on one prescribed PerformaAnnexure-2**

   i. **Both sealed envelopes of Technical and financial bid** may be sealed in one bigger Envelop and sent to **Project Head TEQIP-III, Dr. SSBUICET, Panjab University, Chandigarh** on or before due date and time.

   ii. The **Technical bid will be opened first** and after evaluating the same according to our requirement and desired documents, price bidwill be opened for those who qualify technically.

4. **Terms and Conditions**

   a. The contract shall be for the full quantity as described above.

   b. Corrections, if any, in specifications for matter offered and rates & terms and conditions shall be made by crossing out, initialing, dating and re-writing.

   c. All duties and other levies payable by the supplier under the contract shall be includedin the unit price.

   d. Applicable taxes shall be quoted separately for all items.

   e. The prices quoted by the bidder shall be fixed for the duration of the contract and shallnot be subject to adjustment on any account.

   f. The Prices should be quoted in Indian Rupees only.

   g. Each bidder shall submit only one quotation.

   h. Quotation shall remain valid for a **period not less than 3 months** after the last date of quotation submission.

   i. Conditional and unsigned quotation will not be accepted.

   j. CMC(Comprehensive Maintenance Contract) for the equipment should be provided or should be valid between 3-5 years.

   k. The Tenderer must ensure that the equipment being offered is a new one and not refurbished or repaired one.

   l. If any of the equipment supplied by the Tenderer is found to be substandard/ refurbished or not in accordance with the description /specification or otherwise faulty, the institute has the right to reject the equipment or its part(s). The prices of such equipment shall be refunded by the vendor with 18% interest if such payments for such equipment has already been made to him.

   m. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced

within 45 days on receipt of the intimation from the TEQIP office at the cost and risk of supplier including all other charges.

n. In case of any loss/damage to equipment and supplies during the transportation from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. Dr. SSBUICET will not be liable to any type of losses in any form.

o. The offering firm should clearly mention whether they are the manufacturer or authorized agent/dealer of the manufacturer.

p. The Tenderer should mention in the *Technical bid* the response time for attending to a complaint about the equipment by TEQIP office**.**

5. Evaluation of Quotations

The Project Head, TEQIP-III will evaluate and compare the quotations determined to be substantially responsive and technically acceptable.

a. are properly signed ; and

b. Confirm to the terms and conditions, and specifications.

6. The Quotations would be evaluated for all items together.

Award of contract:

The Project Head TEQIP-III will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

a. Notwithstanding the above, the Project Head, TEQIP-III, Dr. SSBUICET, Panjab University 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.

b. The bidder whose bid is accepted will be notified of the award of contract by theHead TEQIP-III, Dr. SSBUICET, Panjab University, prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.

7. Payment shall be made in Indian Rupees as follows:

Delivery and Installation - 90% of total cost

Satisfactory Acceptance - 10% of total cost

8. All supplied items are under warranty of **2-5** Years from the date of successful acceptance of items.

9. You are requested to provide your offer latest **on or before 17 June, 2019 by 04:00 PM**.

10. Detailed specifications of the items are at **Annexure I**.

11. **Training Clause (if any)**

    Two weeks training should be provided free of charge at the premises of Dr. SSBUICET out of which one week should be on equipment usage & software and one week in maintenance

12. **Testing/Installation Clause (if any):** The equipment and software should be installed and tested to the specifications *free of cost*.

13. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for in Technical Bid. A set of User's manuals and Service manuals of the main instrument, attachments and related equipment should be supplied with theequipment.

14. Sealed quotation to be submitted/ delivered at the address mentioned below,

    TEQIP CELL,
    2nd Floor, Dr. S. S. Bhatnagar University Institute of Chemical Engineering & Technology,
    Panjab University, Chandigarh-160014

15. Tenders received after the due date will not be accepted. If the last date for submission of Tender falls on any declared holiday in the University, the next working day will be considered as the last date for the same.

16. Telegraphic/electronic/conditional offers will not be accepted.

17. We look forward to receiving your quotation and thank you for your interest in this project.

(Authorized Signatory)

Name & Designation

Annexure I

Sr. No	Item Name	Specifications
1.	**Trinocular Microscope**	Trinocular Microscope for transmitted and reflected light, for Material and Bio Applications, Digital Camera system and Imaging Software. Trinocular head to keep digital cameras. The system should be capable to do Reflected brightfeild, Dark field, Fluorescence & C-DIC. In transmitted mode Brightfeild, Dark Feild & Plas DIC should be possible. **Illumination:** a. Separate lamp house for TL,RL b. Halogen lamp (12V 100W) or High power LED c. For Halogen illumination, Diffuser and heat filter for both transmitted and incident light, with switch over Operation mode from transmitted to incident or vice versa. d. Light intensity control including aperture and diaphragm controls e. Power supply (230V) f. Inbuilt power stabilizer. g. Manually operative system. **Optic System:** a. Infinity corrected Optical system with elimination for chrom aberration . Perfocal Distance – about 45 mm **Trinocular Photo Tube:** a. Tube Lens – magnification b. Viewing Angle 15-30 deg c. Inter –pupillary adjustment ranges of 40-80 mm d. Compatible focus of tube lens and eyepiece to get 25 mm FOV e. 3 way beam splitter with particular settings (0:100, f. 20:80,100:0/0:100, 50:50,100:0) **Intermediate Tube:** a. Additional 1.6 & 4.0 magnification changer b. Compatible with 23mm FOV **Condenser:** a. Condenser, achromatic-aplanatic 0.9 H D Ph DIC with front lens switchable on the left and right. 5-position modulator disk. 4 centerable positions with Ph1, Ph2, Ph3 and dark-field stop 0.75. 1 bright-field position with aperture stop. Alternative use of slit-diaphragms PlasDIC possible instead of the Ph/D stops. For objectives 1.0-100x, WD=1.0mm b. Swing-out type

		c. Condenser lens of Magnification, numerical aperture (NA0.9) and d. Iris diaphragm. **Distance between Objective and microscope stage:** a. Distance between the objective and Microscope Stage should be wide enough to keep at least one inch height polished samples, with a facility to adjust the distance between stage and objective for proper focusing of the Polished sample. b. Revolving Nose piece with provision for 6 nos. of objective lens: c. Focusing Knobs for coarse (35-40 mm per rotation) and fine focusing (0.2 mm per rotation) **Stage:** a. Mechanical stage 75x50 R with hardcoat anodized surface 220 x 170 mm stage plate, covered X-guide positioned at bottom, right drive 135 mm (extendable by 15 mm) with friction setting **Objective Lens:** a. All objectives should be capable for BF,DF,DIC **Neoflur/Fluotar objectives with magnifications:** 2.5X, WD: 15mm or More, NA:0.05 or more 5X , WD: 14 mm or More, NA:0.13 or More 10X, WD: 9 mm or more, NA:0.25 or more 20X, WD: 2.2 mm or more,NA:0.5 or more 50X, WD:0.6 mm or more,NA:0.8 or more 100X,WD:0.28 or more,NA:0.90 or more for reflected light studies. b. **Neoflour/Fluotar for Transmitted BF,DF,Phase & Fluorecense Objectives** 5X Ph1, WD: 18.5 mm or more, NA:0.16 or more 10X Ph1, WD: 5.2 mm or more, NA:0.3 or more 20X Ph2, WD: 2.0 mm or more, NA:0.5 or more 40X Ph2, WD: 0.71 mm or more, NA:0.75 or more 100X Ph3 Oil, WD: 0.2 mm or more, NA:1.3 or more c. All objectives should have glass lens d. Flat field for all lens e. All objectives should have infinity correction. f. All objective lenses should be compatible with thin sections with or without cover glasses. g. Field of view for all the objective lelnses should be a minimum of 23mm.

		Eyepiece Pairs: a. Magnification – 10X with diapter adjustment b. Field of View (FOV) – minimum 23 mm c. Focusable & Adjustable d. Must have high resolution precision. e. Eye piece guard. f. Anti-glare protection for viewers with or without eye glasses **Filters:** a. Separate sets of Filter magazine for TL,RL; accommodation filter slots for desired number of filters. b. Filter types suitable for Halogen & LED light sources **Fluorescence:** a. Fluorescence Filters 100W Mercury b. Filter UV-For DAPI, Hoechst, AMCA, Alexa Fluor 350. (Exiter-387/11nm, emitter-447/60). c. Filter Blue- for Rhodamine123, Fluo3,FITC/ethidium bromide, calcium green, Alexa488, GFP, Oregon green 488,500,514, (exciter- 480/40, emitter-527/30). d. Filter Green- for TRITC e. DsRed, PE,Cy3, Alexa546,555. (Exciter- 531/40, emitter 593/40) **Slide Micrometer:** a. One for TL b. one for RL **Dust Cover:** Specifications for Digital microscope Camera and Software: a. High Performance microscopy camera incl. driver software 64bit, USB 3.0 PCIe x1 interface, dual USB 3.0/USB 2.0 cable 3 m and IR barrier filter Hoya C5000 (coated) Number of Pixels: 4230 (H) x 2838 (V) = 12 Mega Pixels Pixel size: 3.1 µm x 3.1 µm Chip size: 13.2 mm x 8.8 mm, equivalent to 1" (16 mm diagonal) Spectral range: With IR barrier filter app. 400 nm to 720 nm Max. Full Well Capacity per pixel: Approx. 9.000 e b. Selectable Resolution: H x V Binning Factor

		4248 x 2832 1x1 Basic-Resolution 2120 x 1416 2x2 Monochrome 1416 x 944 3x3 Color/Monochrome 1056 x 708 4x4 Monochrome 848 x 564 5x5 Color/Monochrome c. Selectable color interpolation quality levels: "High Speed Color" for fastest processing speed or "High Quality Color" for best interpolation results High Quality Black and White conversion mode. d. Live frame rates (depending on hardware and software configuration): Exp. Time 10ms, color enhancement off, 39 Mhz pixel clock, Quadport, Readout H x V Binning Factor Frame Rate, 4248 x 2832 1 10 1416 x 944 3 26 848 x 564 5 35 e. Frame rates for time series recording Continuous Mode with 39 Mhz pixel clock and QuadPort Readout (depending on computer hardware and software configuration) H x V Binning Factor Frame Rate 4248 x 2832 1 10 2120 x 1416 2 19 1416 x 944 3 26 1056 x 708 4 31 848 x 564 5 35 f. ROI H x V Frame Rate 1936 x 1080 22 1936 x 512 36 g. Timelapse recording with "Burst Mode"-function Readout of Sensor Sub-Regions ("ROI"): Adjustable Digitization: 14 Bit / 39 MHz or 13 MHz pixel clock Dynamic Range: Typical >1380: 1 (>62 dB) at typ. < 6.5 e readout noise Dark current: ca. 0.1 e/p/s h. Integration Time: 0.23 ms to 60 s Cooling: One stage Peltier cooling, regulated to 23°C sensor temperature, Additional digital dark current compensation, Calibrated color space optimization, Eight pre-loadable sets of

		imaging parameters for speed optimized multi modal image acquisition, acquisition Time Stamp with image data i. Status-LED for Camera: color coded operation status, dimmable, Status-LED for Trigger: color coded trigger status, dimmable, I/O Control signals: galvanic isolated I/O signals for exposure time, readout time, trigger ready, (i.e. for controlling external mechanical shutters), one trigger input for exposure control, 5V auxiliary voltage, GND) Interface: USB 3.0, 240 MBytes/s, 3 m double-USB cable with USB 3.0/USB 2.0, Optional operation with USB 2.0 connection at reduced frame rate, Optional operation without cooling for use at short exposure times with reduced power consumption j. Optical Interface: C-Mount, Teflon coated thread Thread depth for objectives: max. 5 mm Max. file size per image: app. 72 MB at 4248 x 2832 pixels at 3 x 14 bit/pixel Size / Weight: app. 10.8 cm x 7.8 cm x 4.3 cm (2.3"x3.2"x1.7") / 500 g Housing: blue anodized aluminum, with cooling fins, 1/4" photo thread for tripod mount k. Registration: CE, Power Supply: power supply provided by USB 3.0 bus for camera electronics and USB 2.0 for Peltier-cooling, Power consumption: 7W (5V, 1.4A) Environmental conditions: 5° ... +35° Celsius, max 80% relative air humidity, not condensing, free air circulation required Operating Systems: Windows 7 x64 Prof./Ultimate SP1 (ZEN 2 lite/pro/system) **Software:** a. Image acquisition and processing for light microscopy b. User interface offers stepless scaling and zooming for optimal adjustment to the screen size. **c. Image acquisition with b/w, color, high-resolution and high-sensitivity cameras, b/w images with up to 16 bits, color images with up to 3 x 16 bits.** - Interactive measurement: length, contour-based measurement data (area, box, perimeter, gray values), angle - Post processing of images: standard operations for image optimization (contrast, brightness, gamma, colors, smoothing, sharpening, geometric corrections) - Panorama for acquisition of Tiles Images with manual

		stage - Manual Extended Focus (EDF) capability - HDR # Acquisition of High Dynamic Range Images **d. Module Grain Size Analysis Hardware License Key Module for grain size determination** - Creation and administration of workflows (job templates) for customer specific requirements - Separation into supervisor and user mode - Options of acquisition: Single shots, tiles acquisition, load file from directory, load file from archive **e. Three measurement methods:** - Planimetric method: Automatic reconstruction of grain borders (single grains measurement and determination of the grain size distribution) - Intercept method: Semiautomatic measurement with chord pattern - Compare method: Manual with comparative diagrams (wall charts) - Measurement according to following standards: f. DIN EN ISO 643:2012; ASTM E 112-13 Plate I - IV; ASTM E 1382-97; GB/T 6394 2002 - Archiving of all measurements and generated data - Display of results in data lists, in the graphics plane of the image and for the Planimetric method as histogram **g. Cast Iron Analysis Hardware License Key** h. Module for form and size analysis of graphite particles in cast iron - Creation and administration of workflows (job templates) for customer specific requirements - Separation into supervisor and user mode - Options of acquisition: Single shots, tiles acquisition, load file from directory, load file from archive - One measurement method - Shape and size distribution in area percentage (optional: graphite arrangement with wall charts) - Provided standard: EN ISO 945-1: 2008 + Cor. 1: 2010 - Additional manual reclassification of Phases i. Multiphase Analysis Hardware License Key Module for automatic measurement of particle size and area content of multiphase samples, also evaluation of porosity - Creation and administration of workflows (job templates) for customer specific requirements

		- Separation into supervisor and user mode - Options of acquisition: Single shots, tiles acquisition, load file from directory, load file from archive - Detection (gray values or color) and determination of particle size distribution of up to - 32 phases **j. Available measurement parameters:** - Area, equivalent diameter circle, maximum diameter, perimeter, roundness, elliptical axes A and B, color/gray value - Archiving of all measurements and generated data - Module Layer Thickness Measurement Hardware License Key Module for measuring the thickness of layers - Automatic and interactive measurement - Simple and complex (curved) layer - Separation into supervisor and user mode - Creation and administration of workflows (job templates) for customer specific requirements - Options of acquisition: Single shots, tiles acquisition, load file from directory, load file from archive k. **Module for acquisition of fluorescence and transmitted light** images in independent channels, simultaneous or sequential (multitrack). Dye database, manual microscope setup; "ReUse" function **l. Module Time Lapse Hardware License Key** **m. Module for acquisition of time series** (time-lapse). Definition of intervals, total duration or number of cycles. - Control via time or manually n. Module Measurement Hardware License Key o. Module for advanced interactive measurements, morphological parameters p. of free defined contours, measurements of mean grey and color values. q. Export of measurement data. **PC Specifications:** a. MODEL : HP 280 G4 MICROTOWER BUSINESS PC b. PROCESSOR : Intel® Core™ i7-8700 6C 3.2GHZ 2666MHz 65 W(COFEE LAKE-s)(3 ghz, TURBO UP TO 4.6 GHz , 12 MB Catch cores)

		c. GRAPHICS : INTREGRATED GRAPHICS 630 INTREGRATED ON 8TH CORE d. NVIDIA @GE FORCE GT730 2GB GFX e. MEMORY: 16GB DDR4-2666 UDIMM NECC (2X8GB) RAM f. STORAGE: SATA3-3.5 OR 2.5" 6GB/s HDDS g. 2TB 7200 RPM SATA HARD DISK DRIVE h. SOLID STATE DRIVES: 512 GB M.2 NVMe i. SD CARD READER : j. SD/SDHC/SDXC SD CARD READER k. INTEL OPTANE MEMORY : SSD INTEL 16GB 2280 OPTANE MEMORY l. OPTICAL DISK DRIVE: DVD ROM 9.5 mm m. DVD –Writer 9.5 mm n. NETWORKING : ETHERNET (RJ-45) o. INTREGRATED 10/100/1000M GBe Lan p. WI-FI AND BLUE TOOTH: 802,11 ac (1X1) WI-FI AND BLUETOOTH 4.2 COMBO q. AUDIO / MULTIMEDIA: NTEGRATED HI-DEFINATION AUDIO COMBO JACK , HEADPHONE/ MICROPHONE r. LINE-IN /LINE-OUT /MIC-IN JACKS 93.5 mm) s. KEYBOARD AND POINTING DEVICES: USB BUSINESS SLIM WIRED KEYBOARD t. MOUSE:ANTIMICROBIAL USB MOUSE (CHINA) u. HP OPTICAL USB MOUSE v. PORTS : SLIM – HEIGHT BAY SUPPORT AN OPTICAL DISK DRIVE (OPTIONAL)SLIM HEIGHT BAY SUPPORT AN OPTICAL , SD CARD READER (2), 3.1 Gen 1 Port HDD Light. w. OPERATING SYSTEM : WINDOW 10 PRO. **x. LED : HP 24 INCH – 02 NO'S** y. ADDITIONAL : 1 UPS APC 1100 VA

ANNEXURE-2
FORMAT FOR QUOTATION SUBMISSION
(On the letterhead of the supplier with seal)

To

_____

_____

Date: _____

Sl. No.	Description ofgoods (with fullSpecifications)	Quantity	Unit	Quoted Unit rate in Rs.(Including Ex-Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (In INR only) (A)	Sales tax and other taxes payable	
						In %age	In Figures (B)
				Total Price			

Gross Total Cost (A+B) (in INR):

i. We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. ———— —— (Amount in figures) (Rupees ————————amount in words) within the period specified in the Invitation for Quotations.

ii. We confirm that the normal commercial warranty/ guarantee of ————— months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

iii. We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: _____

Address: _____

Contact No: _____