

भारतीय प्रौद्योगिकी संस्थान ततरुपतत Indian Institute of Technology Tirupati Settupalli, Renigunta Road Tirupati 517506	दूरभाषसंख्या Phone no: 0877 – 2500331 ईमेल Email : govindak@iittp.ac.in
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Prof. T.S. Natarajan

Registrar i/c

Date: 23-07-2018

Public Tender No: IITT/MECH/08/2018-19/013 Due Date: 20-08-2018 at 15.30 hours

Dear Sir/Madam,

On behalf of the **Indian Institute of Technology TIRUPATI**, sealed quotations are invited in two part bid system for supply of following mechanical equipment for **setting up of Mechanical Engineering Lab at IIT Campus near Merlapaka Village, Venkatagiri Road, YERPEDU Mandalam, Chittoor District, Andhra Pradesh.**

Details of the equipment

Sl.No.	Complete Description of Items (Specification Model, Catalog No.) Use separate Sheet if required	Quantity Required
01	Stereo Microscope with HD camera and measurement software	1
02	Upright and internal motorized Metallurgical Microscope with digital CCD camera and image analysis software	1

The detailed specifications of the equipment are given in the Annexure “A” and the compliance statement of specifications as per format (Annexure “B”) enclosed must be filled in item wise and signed with seal. The deviations, if any from the tendered specifications should be clearly brought out in the statement. Technical literature/leaflet showing the compliance of the specification may also be attached with the quotation.

Please ensure that the specifications are basic essence of the product. It must be ensured that the offers must be strictly as per our specifications. At the same time it must be kept in mind that merely copying our specifications in the quotation shall not make the parties eligible for consideration of the quotation. A quotation has to be supported with original catalogue (not of photo copy) of the quoted model duly signed by the principals and the same must be sent along with the technical bid. The quoted model should not become obsolete for a minimum period of 5 years (this is for the availability of spares). Therefore the model quoted should invariably be highlighted in the leaflet/literature enclosed with the quotation. Non-compliance of the above shall be treated as incomplete/ambiguous and the offer can be ignored without giving an opportunity for clarification/negotiation etc. to the bidder.

1. The eligibility criteria for participation in bid are mentioned below:

- 1.1 The Bidder must be an Original Equipment Manufacturer (OEM) or his Authorized Dealer/Authorized Distributor/ Channel Partner having a Direct Purchase and Support agreement with the OEM. In case, if the Bidder is a Dealer/ Distributor, a valid LETTER OF AUTHORIZATION from Original Equipment Manufacturer should be produced along the bid.

- 1.2 *The quoted system and accessories must have been supplied and installed in any of the **IIT's** NITs and **IISC laboratories** in the past three years. Proof of supply and its working condition in the supplied institutes is a mandatory and must be produced along with the bid document.*
- 1.3 The bidder should be willing to arrange for a demonstration of the equipment offered at free of charge on mutually agreeable place and date prior to opening of price bids to ascertain their conformity with tendered specifications.
- 1.4 Vendor shall possess ISO 9000 certification for quality system implementation. Required evidence shall be provided along with offer.
- 1.5 The technical bid shall be evaluated for acceptability by the technical committee and may call the tenderers for discussion. If necessary, the committee may modify the technical specification to suit the requirement of IIT Tirupati. In such case the opportunity shall be given to the participating bidders for submitting the revised bid as per modified specifications, if any.
- 1.6 Bidder should be registered under GST Act with concerned State Sales Tax Authorities. The bidder should furnish along with the bid document, the relevant GST Registration Document and PAN / TAN copies.
- 1.7 Should submit three years Income Tax returns and GST/VAT/ CST returns filed.
- 1.8 The vendor should have a local office to cater sales and service support in India. Also the vendor should install and provide training on the quoted machine free of cost.
- 1.9 *List of Present clientele to whom identical or similar equipment supplied in the preceding three years must be produced with contact addresses & telephone numbers.*
- 1.10 Supplier should quote for the equipment including all accessories/ consumables/ services as per specification on a single responsibility basis. The supplier should be single party responsible for the entire scope mentioned.
- 1.11 Preferred make to be considered are only **Zeiss, Leica, Olympus, or Nikon**.

Note:

The supplier should quote commercially proven model of equipment and/or control system. Prototypes are not acceptable.

The above mentioned basic eligibility conditions are broad guidelines for pre-qualification and the Director/Professor in-charge, IIT Tirupati hereby reserves the right to relax / alter / modify / add, any or all the conditions.

Pre-bid meeting: The pre-bid meeting is scheduled to be held on **10-08-2018 at 14.00** hours at Academic Block, IIT Tirupati 517506. Non-attendance at the pre-bid meeting shall not be a cause for disqualification of a bidder. Bidders may avail the opportunity of pre-bid meeting to get first hand details of the proceedings in their own interest

Delivery schedule: The total equipment should be supplied within 2 months from the date of receipt of Purchase Order, and installation and commissioning should be completed within 20 days from the date of supply of equipment.

The interested bidders are advised to go through the conditions envisaged for eligible criteria for participation in the bidding

2. Instructions to the Bidder

- 2.1 **Preparation of Bids:** The bidders must ensure that bids are submitted in **two part bid system (i.e.) Technical bid and Financial bid in separate envelopes.**
- 2.2 **Techno-commercial bid:** The technical bid should consist of all technical details / brochures along with commercial terms and conditions super-scribed as TECHNICAL BID with Tender No. and date and time of closing and the bidder's name and address. No prices should be included in technical bid.
- 2.3 **Financial (Price) bid:** This should indicate item-wise prices for the items with firm and fixed figures and words super-scribed with the Tender No. and date of closing of the Tender with name of supply/work and the bidder's Name and address. The price bid should not contain any conditional clauses. No price escalation for any reasons whatsoever is allowed. All prices should be given in Indian Rupees or USD or Euros only. The Indian bidders shall quote firm price fully in Indian currency only.
- 2.4 The technical and the financial bids duly signed by the bidders or their authorised signatories with name and seal should be put in separate cover and sealed. Both sealed covers should be put into a bigger cover duly super-scribed with PT No. and due date/time with name of supply /work. **Technical bids must either be spiral bound / stapled together. No loose sheets will be accepted. All pages must be numbered.**
- 2.5 **Submission of the tender:** The complete sealed bids in all respects shall be sent to the following address well in advance either by post or by courier so as to reach this office before the due date and time specified in the Schedule. The bids received after closing date and time shall not be considered.

*The Registrar
Indian Institute of Technology Tirupati,
Renigunta Road,
Settipalli Post,
Tirupati-517 506, Andhra Pradesh*

While submitting the bids, the bidders must sign all the tender documents as a token of accepting of tender documents as well as terms and conditions stipulated therein. Tender documents without signature of bidders or their authorised signatories will be treated as invalid bids.

No conditional offer or terms and conditions will be entertained by the institute and such bids will be treated as invalid.

- 2.6 The tender documents can be down loaded from IIT Tirupati web site: <http://iittp.ac.in/tenders> on or after 27-07-2018
- 2.7 **Bid Security (EMD):** *EMD either in the form of Bank Guarantee or Demand draft at 2% of the quoted value initially valid up-to 90 days drawn in favour of Indian Institute of Technology Tirupati payable at Tirupati must be sent along-with the technical bid only. The technical bid without EMD would be considered as UNSOLICITED and will*

be REJECTED. Photo/FAX copies of the Demand Draft/Banker's pay orders will not be accepted. No interest will be paid for the EMD and the EMD (Bid Security) will be refunded to the successful bidder on receipt of Performance Security (Security Deposit) and in case of unsuccessful bidders, the EMD will be refunded on finalisation of tender.

2.8 Micro and Small Enterprises (MSEs) registered with National Small Industries Corporation are exempted from payment of Earnest Money Deposit. However, vendors covered under this category have to submit copy of registration certificate with present validity along with technical bid, failing which the bid will be disqualified.

2.9 Bid security be forfeited without any intimation in such cases as below:-

- a) If a bidder withdraws its bid during the period of bid validity
- b) If a successful bidder fails to execute the awarded contract
- c) If a successful bidder fails to provide performance guarantee

2.10 Details of our Banker

Name of bank	State Bank of India
Address of bank branch	Settipalli Branch Renigunta Road, Tirupati
Bank Branch code	006677
IFS Code	SBIN0006677
Bank Account Number	35523338208

2.11 **Modifications to bid:** The bidder shall make no modifications to the bids after the closing date unless specifically requested by IIT Tirupati. In case certain clarifications are sought by institute after the opening of bid, then the reply of bidder should be restricted to the clarifications sought. Any bidder who modifies his bid having effect of altering the value of his offer after the closing date without specific reference by IIT Tirupati shall make himself liable to be debarred from this tender and forfeit the bid security amount.

2.12 **Modifications of specification:** The supply to be made by the supplier under this purchase order can be modified or changed by the request from the IIT Tirupati provided that for such modifications or changes the parties shall first agree to possible addition or deduction in cost, the delivery date and such other terms and conditions occasioned by or resulting from such modification or change. Such agreement shall be effected either by way of exchange of letters duly signed by authorised representatives of the parties or by signed change order form or by minutes of meeting signed by authorised representatives of the parties, which shall constitute the necessary amendments to the contract. Possible increase or decrease in the contract price shall be calculated in accordance with unit prices. The cost of such additional jobs should be reasonably fixed with reference to the quoted price for such or similar items.

2.13 **Opening of the tender:** The technical bids will be opened by the tender committee duly constituted in the presence of bidders or their authorised representatives on 20-08-2018 at 16.00 hours. **The technical bid without EMD will not be entertained and treated as invalid bid.** Then the bids will be evaluated by the Technical Evaluation Committee which will decide the suitability of the technical bids as per our requirement and terms and conditions. Once the technical evaluation is completed, the price Bids of only those bidders who are found technically acceptable will be opened in the presence of Authorized Representatives of such bidder(s), if any on a date and at a venue to be intimated by IIT Tirupati to the short listed bidders.

2.14 The bidder shall note that any unsolicited post-tender reduction by them would disqualify them from participating from the bidding and forfeit the security bid.

2.15 Incomplete bids are liable for rejection.

2.16 **Prices:** The price should be quoted on FOR: IIT, Tirupati. The bid should consist of basic price, P&F charges, freight, Installation and commissioning charges and applicable taxes.

The total landed cost will be calculated from the information provided by the bidder in their price bids. The bid conforming to the lowest cost would then be considered for award of contract.

2.17 **Annual Maintenance contract (AMC):** AMC charges for a period of three years should be quoted separately for the equipment where-ever applicable which come into force after expiry of warranty/guarantee periods. The quote should contain details about free replacement of spares/accessories/software during the currency of AMC and number of break down calls shall be attended and duration of time required for attending to emergency calls and details of essential spares which are to be supplied on chargeable basis also need to be mentioned in the quote. IIT Tirupati reserves the right to conclude AMC at appropriate time after expiry of warranty period depending upon the requirement.

IIT Tirupati reserves the right to split and award item-wise contract to the lowest bidder.

The custom duty if any applicable must be shown separately. It may be noted that IIT Tirupati is exempted from payment of custom duty and duty at concessional rate against duty exemption will be paid.

In case of import supply, the price should be quoted on EX-WORKS/FOB/CIP basis indicating the mode of shipment.

2.18 **Offer validity:** The offer must be valid for 90 days from the closing date. If the validity of offers for acceptance is less than 90 days, the same will not be considered.

2.19 **IIT Tirupati** reserves the full right to accept / reject any tender or all tenderers at any stage without assigning any reason.

Yours sincerely,

Registrar, IIT Tirupati

3. **Important Commercial terms and conditions:**

- 3.1 The due date for the submission of the tender is 20-08-2018 at 15.30 hours.
- 3.2 **Late offer:** The offers received after the due date and time of closing will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
- 3.3 **Performance Bank Guarantee:** Performance Bank guarantee for 5% of purchase order value should be produced in the form of B.G from the nationalised /scheduled Bank valid till the completion of warranty / guarantee period plus sixty days as claim period. Wherever installation/commissioning is involved, the guarantee/warranty period shall be reckoned from the date of completion of installation/commission. Failure to render contracted service during the warranty/guarantee period by the contractor, the performance bank guarantee will be forfeited. No interest is payable on the performance Bank guarantee amount.
- 3.4 **Inspection Clause:** All major mechanical equipment will be inspected by a team of IIT Tirupati at Supplier's premises and after clearance in the form of report, the items shall be despatched to IIT Tirupati. Readiness of equipment shall need to be intimated well in advance for our inspection formalities.
- 3.5 **Delivery Schedule:** Please note that delivery is the essence of the contract. In case there is any deviation in the delivery schedule, liquidated damages clause will be levied for the delayed supply period. Therefore, it should be ensured that all the ordered items should be supplied within 2 months from the date of receipt of Purchase Order on door delivery basis at our Institute as per Purchase order terms securely and sufficiently packed by following standard packing procedure to withstand transit damages. In case of import supply, the item should be delivered at the cost of supplier to our institution. The installation and commissioning should be completed as specified in our important terms and conditions.
- 3.6 **Extension of time:** If the completion of stores is delayed due to reason of force majeure such as acts of God, acts of public enemy, acts of Government, fires, floods, epidemics, quarantine restriction, strikes etc., the contractor shall give notice within 15 days to Institute in writing of his claim for an extension of time. The Institute on receipt of such notice after verification, if necessary, may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms and conditions of the contract.
- 3.7 **Liquidated damages:** If the Contractor fails to deliver the material within the time specified in the Contract or any extension thereof, the Institute shall recover from the Contractor as Liquidated Damages a sum of one-half of one per cent (0.5 per cent) of the Contract Price of the undelivered material for each calendar week of delay. The total liquidated damages shall not exceed ten per cent (10%) of the Contract price of the unit or units so delayed. Stores will be deemed to have been delivered only when all their component parts are also delivered.
- 3.8 **Guarantee/Warranty:** The Contractor shall guarantee that the material supplied shall comply fully with the specifications laid down, for material, workmanship and performance after acceptance of the material. The tenderer should clearly mention in the bid the period of guarantee/warranty offered by him. If any defects are discovered therein

or any defects therein found to have developed under proper use arising from faulty stores design or workmanship, the Contractor shall remedy / replace such defective items at his own cost.

The Bidder should clearly categorize the Basic/Standard features as well as optional features of the system in order to have a clear cost comparison. Essential spares if any for maintenance to be quoted separately. The bidder should ensure continued supply of spares throughout the useful life of the equipment.

3.9 **Insurance:** IIT Tirupati being a Central autonomous body under Ministry of HRD, Government of India, we will not insure our goods. However, to safe guard the ordered material from probable transit damage while in transportation the contractor may insure the goods at his risk and cost.

3.10 **Payment terms:** No Advance payment will be made for Indigenous purchase. Our normal payment terms are 100% within 30 days after receipt of complete supply at our site and acceptance. However in case of high value Purchase Orders, as a special case, payment of 90% of Order value will be made based on pre-inspection of material at supplier's site and also on receipt of goods at our site and clearance by inspection team. Balance 10% of PO value after completion of installation, inspection and acceptance formalities. For making payment original tax invoice in triplicate, delivery challan's, material test certificate, pre-inspection of material at factory, guarantee/warranty certificates must be sent along with material.

In case of import supplies, our normal terms of payment are by Sight Draft. However, other terms of payment such as Letter of Credit also considered as agreed upon by opening LC for 100% in which case 90% payment will be released against proof of shipping documents and balance 10% after successful installation wherever the installation is involved/on receipt and acceptance of materials at our site.

3.11 **Advance Payment:** No advance payment to indigenous supplies will be made. However in case of import goods, specific percentage of advance payment will be agreed upon for which, the foreign vendor has to submit a bank guarantee equal to the amount of advance payment and it should be routed through the beneficiary bank to the end user bank. Otherwise, the Indian agent of the foreign vendor has to submit a bank guarantee through a nationalized bank of India.

If an Indian agent is involved, the following documents must be enclosed:

Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian agent.

Copy of the agency agreement concluded with the foreign principal and the precise relationship between them and their mutual interest in the business.

The enlistment of Indian agent with Director General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.

3.12 **Agency Commission:** Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in tender even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. The

foreign principal should indicate about the percentage of payment and it should be included in the originally quoted basic price, if any.

3.13 On-site erection and commissioning: It is the responsibility of the Contractor to install and commission the equipment or machinery supplied by them within 15 - 20 days from the date of receipt of the item at site of IIT Tirupati and demonstrate the performance of the system to the satisfaction of the users/concerned faculty members/committee in-charge at IIT Tirupati. In case the Contractor fails to carry out the erection as and when called upon to do so within the specified period by the Institute, the Institute shall have the right to get the erection work done through any source of his choice. In such an event, the Contractor shall be liable to bear any additional expenditure that the Institute is liable to incur towards erection.

3.14 Training of end user: The successful bidder shall provide comprehensive training at IIT Tirupati to IIT personnel on operation, programming, and maintenance at free of cost on all the items installed to the satisfaction of the IIT personnel. The expenses related to travel (to and fro) including local travel, stay, food and per diem and training have to be completely borne by the vendor.

3.15 Do not quote the optional items or additional items unless otherwise mentioned in the tender documents / specifications.

ARBITRATION CLAUSE: Arbitration in the event of any dispute or difference arising under these terms & conditions or any Condition contained in the Purchase Order or in connection with this contract (except as to any matter the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of the Registrar, IIT Tirupati or of some other person appointed by him, and the dispute further processed in terms of the Arbitration & Conciliation Act, 1996. There will be no objection that the arbitrator is a government servant that he deal with matter which the contract relates to or that in the course of his duties as government servant has expressed views on all or any of the matters in dispute or difference. The award of the arbitrator shall be final and binding on the parties of this contract.

If the arbitrator is the Registrar, IIT, Tirupati

- i. In the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor in office either to proceed with the reference himself for to appoint another person as arbitrator, or
- ii. In the event of his being unwilling or unable to act for any reason, it shall be lawful for the Registrar, IIT Tirupati to appoint another person as arbitrator.

If the arbitrator is a person appointed by the Registrar, IIT Tirupati – In the event of his denying or neglecting or refusing to act, or resigning or being unable to act, for any reason, shall be lawful for the Registrar, IIT Tirupati to proceed with the reference himself or to appoint another person as arbitrator in place of the outgoing arbitrator subject, as aforesaid, to the Arbitration & Conciliation Act, 1996, and the rules there-under and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceeding under the clause. The Arbitrator shall have the power to extend with the consent of the purchaser and the contractor the time for making and publishing the award. The venue of Arbitration shall be the place as the purchaser in his absolute discretion may determine

work under the Contract shall, if reasonably possible, continue during Arbitration Proceedings.

All amendments, time extension, clarifications etc., if any will be uploaded in the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

3.16 **Acknowledgement:** It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE
COMPANY WITH DATE**

Annexure A- Specifications for microscopes

01. Stereo Microscope with HD camera and measurement software

Scope: To study the macrostructure of various materials and manufactured components.
Specifications:
The microscope should have 12 mm or better depth of field with Greenough optical design/parallel optics and field of view up to 35mm or better.
The microscope should have the facility of 1:8 zoom or better with magnification 8x-80x or better with 10x eyepieces and 0.63x objective lens.
The instrument should be facilitated with complete apochromatic corrected microscopy system - 45° angle or better eye tubes.
120 mm or more working distance should be provided.
Resolution up to 250 lp/mm or better without supplementary lens and 10x eyepieces.
For inspection at specific magnification the instrument should have multiple click stops between 8x to 80x with 0.63x or better objective.
Eyepiece 10x magnification and 22 mm FoV or better with adjustable diopters, suitable for eyeglasses wearers and non-eyeglass wearers. (FoV is less than Leica).
Boom stand for observing large specimens should be provided.
The microscope should be accommodated with ring light and spot light with 2 arms illuminations and with a facility of adjusting light intensity with diffusor.
The microscope should be supplied with a 5 megapixel integrated HD camera with CMOS or better, and related accessories, if any.
Interactive measurement software (updated) with parameters such as length, distance, area, perimeter, diameter and angles etc should be supplied.
A branded desktop computer system with below specifications or better is required: Intel I7 processor or better 8 GB RAM or better 2 TB HDD 4 GB graphics express card (Nvidia or equivalent) 1 No. PCI slot full height (compulsory), 2 No.s PCI-express: 1x slot-1 no. and 16x slot 1 no. 400 W SMPS power supply DVD writer 24 inch square monitor Keyboard and mouse Ethernet Windows 7 or better version with original license Microsoft office 2010 or better version with original license
Warranty
Three year warranty for all the above mentioned items for the smooth and trouble free working after installation and commissioning.
Important Prerequisite
Installation, commissioning, calibration and training should be offered free of cost.
Any hardware, accessories and software (other than the mentioned above) required for the satisfactory installation, commissioning and training of the stereomicroscope as well as its hassle free functioning should also be quoted separately.
Pre-installation requirement should be clearly reported in the technical bid documents.
Preferred make to be considered
Zeiss, Leica, Olympus, Nikon

02. Upright and internal motorized Metallurgical Microscope with digital CCD camera and image analysis software

Scope: To study the microstructure of various materials and manufactured components.
Specifications:
General description
The upright metallurgical microscope shall have the following features: <ul style="list-style-type: none"> • Reflected light illumination LED • System capable of automatic recognition of the objective • Digital CCD camera/CMOS • Image analysis software
Microscope stand
The microscope stand shall be a rigid metallic stand for operating stability
The microscope stand shall have the following features: <ul style="list-style-type: none"> • Transmitted light, polarized light and reflected light illumination • Manual 2 or better steps focus drive • Manual 6 fold objective turret for all contrasting techniques • Automatic change of contrast methods with the touch of button • Motorized aperture and field Diaphragm discs
Contrast methods
The microscope shall have the following contrast techniques: Reflected Light <ul style="list-style-type: none"> • Bright Field illumination (BF) • Dark Field illumination (DF) • Polarized contrast illumination (POL) • Differential Interference Contrast (DIC)/ Circular Differential Interference Contrast (C-DIC)
Illumination
LED illumination for both reflected and transmitted to ensure contrast colour temperature at different contrasting techniques such as brightfield, darkfield, polarization and interference contrast.
All the required peripherals such as cables, controls and connections to be provided with the quoted illumination system
Objective lens system
The objective lenses shall be of Semi Apochromatic grade with Field of View of minimum 22 mm or better suited for BF, DF, DIC and POL contrast techniques
Objective Lens Magnification: 5X with Numerical Aperture=0.10 or better 10X with Numerical Aperture=0.20 20X with Numerical Aperture=0.40 50X with Numerical Aperture=0.80 100X with Numerical Aperture=0.90 Macro objective system with 1.25X magnification
Eyepiece lens
Pair of Plan Achromatic grade Eyepieces of 10X magnification with Field of View of 22 mm or better
Eyepiece with ASTM graticule for Grain size measurements
Eyepiece with scale: 10 mm divided into 100 units
Nosepiece
Coded 6-fold/position Revolving nosepiece
Coded for all contrasting techniques

Focus system
Manual Z drive, with one focussing knob for coarse and fine movement and one focussing knob for fine movement only. Complete moving range is up to 50mm.(min) <i>Note: With the flexibility of future on-field motorization of z-drive</i>
Microscope stage
mechanical stage for industrial applications, with ceramic coated plate, 100° rotation, travel range 75x50mm or better, right hand handling, with bracket and condenser holder with object holder
Condenser
Condenser BF, motorized condenser with motorized top lens, automatic Koehler illumination, for objectives 1.25x-100x, for BF and POL contrast.
Viewing Tube
Mechanical documentation tube, with fixed viewing angle 30°, field of view 25, variable beam splitters, 3 beam splitter positions: 100% eyepieces, 50% eyepieces: 50% documentation port 100% documentation port.
Polarizer
The illumination light should be linearly polarized by means of – polarizers for reflected and transmitted light and 180° rotatable analyser.
Digital CCD Camera
The microscope shall be equipped with high resolution CMOS color camera with the following features: <ul style="list-style-type: none"> • Resolution: min. 3.0Million Pixels or better • PC interface should be with USB 3.0 or better • Pixel size: min. 3.45 µm x 3.45 µm or better • Image format: bmp, tiff, jpeg • Camera speed: 25 fps or better • Compatible with latest version of Windows operating system • Power supply: 230-250V / 50Hz • The camera shall be equipped with all necessary PC interface cable and software
Image analysis software
Image analysis system shall perform the following quantitative analysis on metallographic samples: <ul style="list-style-type: none"> • Grain size analysis by comparison method and automatic method as per ASTM E112. JIS G0551/0552 and ISO 643:20021) with Planimetric, Vertical Lines, Horizontal Lines, Three circle method and E1832 Linear Intercept methods. • Phase Percentage analysis: Automated measurement to ensure repeatability and - Integrated report generation facility, including standard templates that can be easily customisable Can Identify up to 8 or better different phases represented in an image by colour or contrast. Can able to Measures multiple parameters such as the area, surface, intercepts of each phase. • The Image analysis software shall have the Interactive measurements such as length, area and angle in live image as well as stored images. • Particle size annotation. • Acquiring images at different focus positions and combining into a single image of sharp across the whole field of view. • Customized report generation to EXCEL/PDF/WORD formats. • Software should have step by step methods to perform above analysis. • Supplier should provide the original licensed version of the software, work instructions and manual of software both in hard/ soft copy. • Automated Non Metallic Inclusion rating according to ASTM E45:2011 and ISO 4967.

A **branded desktop computer system** with below specifications or better is required:

Intel I7 processor or better

8 GB RAM or better

2 TB HDD

4 GB graphics express card (Nvidia or equivalent)

1 No. PCI slot full height (compulsory), 2 No.s PCI-express: 1x slot-1 no. and 16x slot 1 no.

400 W SMPS power supply

DVD writer

24 inch square monitor

Keyboard and mouse

Ethernet

Windows 7 or better version with original license

Microsoft office 2010 or better version with original license

Warranty

Three year warranty for all the above mentioned items for the smooth and trouble free working after installation and commissioning.

Important Prerequisite

Installation, commissioning, calibration and training should be offered free of cost.

Any hardware, accessories and software (other than the mentioned above) required for the satisfactory installation, commissioning and training of the stereomicroscope as well as its hassle free functioning should also be quoted separately.

Pre-installation requirement should be clearly reported in the technical bid documents.

Preferred make to be considered

Zeiss, Leica, Olympus, Nikon

Note:

- 1. All the above mentioned items should be supplied with accessories (additionally if needed other than mentioned above) for three years of normal operation together with a full three-year warranty.*
- 2. The above mentioned items should also be supplied with soft and hard copies of installation operation, operating manual and maintenance manual, which should be demonstrated at the time of installation.*
- 3. Standard tool kit shall be provided for general maintenance service for all the above mentioned products.*
- 4. Vendors need to submit the complete system pre-installation requirements.*

Annexure B – Compliance Statement of Technical Specifications

S.No.	Item description (specification of Item)	Compliance whether “YES” or “NO”	If No, then specify deviations explicitly
01.			
02.			
03.			

