PERIYAR UNIVERSITY

SALEM- 636011, TAMIL NADU

NAAC **A** Grade - State University - NIRF Rank 90

TENDER NOTICE

No. PU/R/PL&D3/Geology/7446,7451,7452/2018 **Date: 27.08.2018**

Sealed tenders (Two cover system) will be received by the Registrar, Periyar University, Periyar Palkalai Nagar, Salem – 11 upto 10.30 A.M. on **19.09.2018** for the **Purchase of 1) Petrological Microscope Student Grade 2) Petrological Microscope Research Grade 3) Strereozoom Microscope with Image Acquisition System for DST-"FIST Program" Project in the Department of Geology** from reputed firms. The intended tenderers should show their credentials and get concurrence of the Registrar before purchase of tender schedules. Tender schedules can be had from the undersigned from **30.08.2018 to 18.09.2018** between 10.00 A.M and 3.00 P.M on payment of demand draft drawn in any nationalized bank in favour of the Registrar, Periyar University, payable at Salem as detailed below. Tender should reach this office on or before 10.30 A.M. on **19.09.2018**. Specifications are Overleaf.

Tenders to be opened on **19.09.2018** at 11.30 A.M in our office.

The EMD in the form of demand draft should be drawn in any Nationalised bank in favour of the Registrar, Periyar University, payable at Salem.

Sl.No	Description	Qty.	Cost of tender documents	EMD `	Time of completion of supply
1.	Petrological Microscope Student Grade (Without Camera) (Annexure-I)	13 Nos.	Rs. 16,800/- (Cost – Rs.15000/- GST- Rs. 1800/-)	EMD at 1% of the Instrument Value	15 days
2.	Petrological Microscope Student Grade (With Camera) (Annexure-II)	1 No.			
3.	Petrological Microscope Research Grade (Annexure-III)	1 No.			

4.	Strereozoom Microscope with Image Acquisition System (Annexure-IV)	1 No.			

(Specifications are Overleaf)

REGISTRAR i/c

Annexure – I

Technical specifications for Petrological (Polarizing) Microscope – Student Grade (Without Camera) - 13 nos.

1) Polorising microscope with with 4-position individually centerable nosepiece for exact centration of each objective to the stage rotation axis, for quick and easy change of magnification.

2) Koehler Illumination, Polariser for Transmitted Light and Add on lens for Condensers.

3) Universal Power Supply plus USB Power with integrated connector

4) Large 178 mm diameter stage for easy specimen placement and viewing of calibrations Circular rotating stage with graduations and adjustable brake

5) LED illumination, Auto off, built in handle and cord wrap,

6) 30 degree Binocular Pol Tube with eyepiece locking mechanism ,orientation key in right eye tube for the Crosshair reticle eyepiece,

7) 10X/20 focusing eyepiece w/eyeguard, 10X/20 focusing eyepiece with eyeguard and Crosshair reticle and pin for orientation,

8) 530nm Lambda Compensator and quarter wave plate

9) Analyzer/Bertrand Lens Module,

10) microscope should have facility to store the compensators and centring tools in the body

11) Pol Abbe Condenser 0.85 NA,

12) Objectives:
HI Plan Pol 4X/0.10 NA 18.0mmW.D.,
HI Plan Pol 10X/0.25 NA 12.0mm W.D.,
HI Plan Pol 40X/0.65 NA 0.36mmW.D..

13) Objective centering tools,2 Object Clamps, Dust Cover, User Manual CD, and power cord

14) Auto shutoff function after 2 hours of no use

15) Built in handle and cord wrap . Objective centring tools

16) The microscope should have handle and under cut in the front so that it can be carried from one place to other

Annexure – II

Technical specifications for Petrological (Polarizing) Microscope – Student Grade (With Camera) – 1 Qty.

1) Polorising microscope with with 4-position individually centerable nosepiece for exact centration of each objective to the stage rotation axis, for quick and easy change of magnification.

2) Koehler Illumination, Polariser for Transmitted Light and Add on lens for Condensers.

3) Universal Power Supply plus USB Power with integrated connector

4) Large 178 mm diameter stage for easy specimen placement and viewing of calibrations Circular rotating stage with graduations and adjustable brake

5) LED illumination, Auto off, built in handle and cord wrap,

6) 30 degree Binocular Pol Tube with eyepiece locking mechanism ,orientation key in right eye tube for the Crosshair reticle eyepiece,

7) 10X/20 focusing eyepiece w/eyeguard, 10X/20 focusing eyepiece with eyeguard and Crosshair reticle and pin for orientation,

8) 530nm Lambda Compensator and quarter wave plate

9) Analyzer/Bertrand Lens Module,

10) microscope should have facility to store the compensators and centring tools in the body

11) Pol Abbe Condenser 0.85 NA,

12) Objectives:
HI Plan Pol 4X/0.10 NA 18.0mmW.D.,
HI Plan Pol 10X/0.25 NA 12.0mm W.D.,
HI Plan Pol 40X/0.65 NA 0.36mmW.D..

13) Objective centering tools,2 Object Clamps, Dust Cover, User Manual CD, and power cord

14) Auto shutoff function after 2 hours of no use

15) Built in handle and cord wrap . Objective centring tools

16) The microscope should have handle and under cut in the front so that it can be carried from one place to other

17) Out of above 14 nos Bonocluar microscope , one should be equipped with trinocular tube for attaching the digital camera

18) 2.5X Objective Lenses – 3 Nos

19) 0.63X Objectives – 2 nos

20) Digital camera with below specifications – 1 no
Camera with Software- Digital color camera with CMOS sensor (1/2)" stand alone operation without any PC should be possible-
High definition live image 1920x1080p,
30fps- JPG images with max. 5 Mpixels-
MP4 movie clips with max. 2 Mpixels-
Camera control via computer (PC mode) or via remote control RC2 (HD mode)-
USB2 connection, compatible with PCs and notebooks
Suitable C mount adopter for above camera

21) Quartz wedge 1st - 4th order – 3 nos

22) PC with following specifications – 1 no
Intel I5 processor or better
8GB RAM
1TB HDD
2GB Graphic card
2 PCi express slot (16X slot – 1 no and 1X slot – 1no)
DVD writer
19 " High resolution color square Monitor (available in DELL)
Keyboard,Mouse
Windows 7 Professional 64 bit version
MS office

23) Microscope, camera and software should be from single manufacturer for better synchronisation.

Annexure-III

REASERCH GRADE TRINOCULAR POLARISING PETROLOGICAL MICROSCOPES (For transmitted and Reflected light, Orthoscopic and Conoscopic studies – Qty 1No.

1) Optical system Infinity colour corrected with elimination for chrom aberration.
2) Eyepiece tube Trinocular with three beam splitter, it should allow photomicrography.

3) Eyepiece

Two eyepiece lenses having high resolution and precision. Both should be separately focusable and adjustable (dioptre adjustment) and should have eye guard. One eye piece should have a micrometer /graticule scale for calibration (one with reticule for pol) and 90° crosshair.

Magnification: 10 X Field Of View (F.O.V.): Minimum 22 mm,the more is preferable.

4) Intermediate tube

Focusable and centerable bertrand lens removable from optic path, Analyzer removable from optic path, Switchable conoscopic /orthoscopic observation and with plate/compensator slots.

5) Analyzer Transmitted/reflected high precision slider-type light analyzer with 360° rotary dial with accuracy of 0.1°. It should be rotatable for a full 360°.
6) Revolving Nosepiece or Turret

Reversed Centering quintuple (5 place) detachable nosepiece with individual centering facility for each objective. It should have compensator slot for advanced quantitative measurements.

7) Focusing mechanism

Three step focus drive with standard fine, Medium and coarse focus. Refocusing system incorporated in stage.

Accessories for Research grade POL microscope -Part II

8) Stage

-Vibration resistant design with option to attach mechanical stage and/or point counter for modal analysis.

-Circular, centerable to the optical axis, graduated, 360° horizontally rotatable with arresting facility and stage clips.

-1° increment and 0.1° vernier reading.

-Diameter- at least 160 mm, It should be large enough to support modal analysis through point counter.

- Distance between the Objective and Microscope stage should be wide enough to keep at least 1 inch height polished samples,with a facility to adjust the distance between stage and Objective for proper focusing of the polished Sample (Slabs), thin sections and thin-cum- polish sections.

9) Attachable mechanical stage

It should have arrangements for moving the slide both vertically and horizontally with at least 35mm x 25mm travel and 0.1mm vernier.

10) Illuminaton:

Pre centered and pre-focused Transmitted and Reflceted light polarizing illuminator with steady LED light source , changeover switch, continuously variable intensity control for providing sufficient brightness for reflected and transmitted light studies

11) Objectives

Aberration free universal POL objectives capable of both reflected and transmitted light petrographic studies

There should be arrangements for rack stop to limit the distance between objective lens and slide to a safe distance.

Lens should be of infinity optics type with no harmful elements such as lead, arsenic and chromium.

All objective should provide colour corrections, corrections for aberrations and high optical resolution.

Objective 1: Magnification- 2.5 X
Objective 2: Magnification- 4/5 X
Objective 3: Magnification- 10 X
Objective 4: Magnification- 20 X
Objective 5: Magnification- 40/50 X

12) Oil immersion objective - Magnification- 100 X

13) Condenser

Dedicated strain free, swing-out type, centerable and focusable 360° rotatable condenser with Iris diaphragm

14) Polarizers

It should be rotatable (360°) and attachable to bottom of condenser with scale

15 Compensators Quarter lambda (Mica), one lambda λ (Gypsum) plates, quartz wedge. These should be insertable into intermediate tube slot.

16) Dust cover Good quality able to cover all parts of microscope

17) Digital camera and imaging software Digital camera with below specifications – 1 no

Camera with Software- Digital color camera with CMOS sensor (1/2)”
stand alone operation without any PC should be possible-
High definition live image 1920x1080p,
30fps- JPG images with max. 5 Mpixels-
MP4 movie clips with max. 2 Mpixels-
Camera control via computer (PC mode) or via remote control RC2 (HD mode)-
USB2 connection, compatible with PCs and notebooks
Suitable C mount adopter for above camera

18) PC with following specifications – 1 no

Intel I5 processor or better

- 8GB RAM
- 1TB HDD
- 2GB Graphic card
- 2 PCi express slot (16X slot – 1 no and 1X slot – 1no)
- DVD writer
- 19 " High resolution color square Monitor (available in DELL)
- Keyboard,Mouse
- Windows 7 Professional 64 bit version
- MS office

19) Microscope, camera and software should be from single manufacturer for better synchronisation.
20) Warranty Standard 12 months warranty
21) Installation at consignee place
22) Training On-site training for 2-3 working days
23) The manufacturing firm should be internationally reputed.

Annexure – IV

Stereo Zoom microscope with Image Acquisition System – Qty. 1 No.

1) 20.5:1 zoom ratio with 7.8x-160x magnification range with1x objective and 10x eyepieces

2) FusionOptics technology for high resolution and depth of field together for ideal optical 3-D impression

3) Resolution up to 525 lp/mm (1x objective, 10x eyepieces), maximum resolution should be up to 1050 lp/mm (2x objective, 10x eyepieces)

4) Coded functions: zoom, iris diaphragm and objective nosepiece Coding for reproducibility and consistency in experimental procedures and to permit calibrated measurement at all zoom levels

5) Click stop zoom settings for observation at specific magnification should be easily repeated

6) Fully apochromatic corrected optics for high contrast, natural color images without color fringes or chromatic.

7) Eyepiece 10x/23B, dioptre adjustable, wide-field eyepiece for spectacle wearers, can also accomidate graticules, with exchangeable soft eyecups

8) Inclined binocular tube 45°, Interpupillary distance 52-76 mm

9) Trinocular tube 50%- Fixed beamsplitter 50% eyepieces and 50% camera- Interpupillary distance 51-77mm- Observation angle 30°-

10) Objective Planapo 1.0x - Working distance 61.5 mm-

11) Objective Planapo 2.0x - Working distance 20.1

12) analyzer in rotatable mount, for objective diameter 80mm

13) Discussion tube, for second observer with light pointer (arrow), battery powerd with Support for Discussion Tube

14) Focus drive coarse/fine long 620mm for all incident and transmitted light bases- Max. load 15kg

Accessories for Stereo Zoom microscope with Image Acquisition System:

15) Transmitted Light Base with bightfield and one sided darkfield- should Features a sliding mirror for guiding light through the specimen at different angles Tilting angle of the mirror is automatically set to the optimal angle, for quick and reliable contrasting of specimens - Illuminated object field diameter 50 mm- with halogen illumination 20 W halogen reflector bulb

16) Pol. on glass stage plate,120 mm, polarizer on glass stage plate for transmitted light bases with interface 120 mm,

17) LED Ring Light should have 40 Hi-Power LEDs, ca. 5600K color temperature, selectable segments, working distance 50-80 mm

18) LED Spotlight illumination, 2-arm Gooseneck with 500 mm length, with 2 Hi-Power LEDs, ca. 5600K color temperature, with Power Supply

19) Digital camera with below specifications – 1 no

Camera with Software- Digital color camera with CMOS sensor (1/2)" stand alone operation without any PC should be possible-
High definition live image 1920x1080p,
30fps- JPG images with max. 5 Mpixels-
MP4 movie clips with max. 2 Mpixels-
Camera control via computer (PC mode) or via remote control RC2 (HD mode)-
USB2 connection, compatible with PCs and notebooks
Suitable C mount adopter for above camera

20) PC with following specifications – 1 no

Intel I5 processor or better
8GB RAM
1TB HDD
2GB Graphic card
2 PCi express slot (16X slot – 1 no and 1X slot – 1no)
DVD writer
19 " High resolution color square Monitor (available in DELL)
Keyboard,Mouse
Windows 7 Professional 64 bit version
MS office and color laser printer

21) Microscope, camera and software should be from single manufacturer for better synchronisation.