

# MAHARSHI DAYANAND UNIVERSITY ROHTAK

## TENDER NOTICE

Sealed tenders superscribing as "Tender for various Lab Equipments" of Civil Engineering are invited for the purchase of equipments for UIET latest by 07.08.2012 at 01:00 P.M. alongwith Earnest money @ 2% of involved value as demand Draft in favour of Finance Officer, M.D. University, Rohtak. For details may visit University website [www.mdurohtak.com](http://www.mdurohtak.com) . Tenders will be opened on 07.08.2012 at 3.00 p.m. in the office of the Director, University Institute of Engineering & Technology.

REGISTRAR

# UNIVERSITY INSTITUTE OF ENGINEERING & TECHNOLOGY

## MAHARSHI DAYANAND UNIVERSITY ROHTAK

### TERMS & CONDITIONS OF THE TENDER FOR SUPPLY OF LAB EQUIPMENT FOR MECHANICAL LAB

The articles/material as per specification given overleaf/attached is to be purchased for this Institute. You are requested to kindly quote your rates for the same. The following terms and conditions for quoting the rates may kindly be kept in view while you do so:-

1. All charges payable by the University should clearly be stated.
2. Sealed quotations/tender should be addressed to the Director, UIET, M.D.University, Rohtak and reach the office of the undersigned on before 07.08.2012 at 01:00 p.m. quoting our reference and due date of opening on the envelope.
3. The quotation/tender should be submitted only if the material is available in you ready stock or can be supplied within 15 days after the order is placed.
4. The quotation/tender will be opened in the office of the undersigned on 07.08.2012 at 3.00 p.m.in the presence of the parties or their representatives who so ever like to be present.
5. An amount of 2% of quoted amount only in the shape of Bank Draft in favour of Finance Officer, M.D. University, Rohtak as earnest money should accompany the quotation/tender in absence of which the tender/quotation will not be entertained.
6. Tender received without earnest money or after the due date shall not be entertained except with the special approval of the Registrar.
7. As far as possible the rates should be quoted for the make and specification of the items given. In case any alternative/equivalent item is offered its specifications and leaflets may be sent with the tender/quotation. The sample of material should accompany the tender/quotation for record.
8. Guarantee/warranty period for equipments should be clearly specified /mentioned.
9. 100% payment will be made on receipt and inspection of goods/items to ensure the specifications and their good condition by the inspection Committee.
10. Dispute, if any, will be subject to Rohtak jurisdiction.
11. The University reserves the right to reject any or all quotation/tenders without assigning any reason thereof.
12. If your rates are approved by the DGS&D and other Central/State Agency, the rates of the same must be quoted and the copy of the rate contract be attached.
13. Tender must be submitted by Either Manufacturer or their authorized dealer/Distributor. Authorization letter in proper format must be attached with tender otherwise Bids will not be considered. Authorization letter should be on letter head of Manufacturer and should be signed & stamped. Tenders from dealers will be rejected without proper authorization letter from the manufacturers.
14. In case the contractor backs out of his contract, the earnest money deposited by him shall be forfeited besides any other action as may be considered necessary by the Vice-Chancellor.

## STRUCTURAL ANALYSIS LAB-I

S. No.	Name of Items	Specifications	Qty
1	APPARATUS FOR VERIFICATION OF CLERK'S MAXWELL RECIPROCAL THEOREM	Apparatus should consist of a stainless steel beam 100-150cm long and 1.25cm x 6mm in cross section with graduations at every 10cms along the length. It should support on two knife edge supports 70cm apart with a 30cm overhang on one side. Reciprocal theorem can be verified by direct measurements of the deflections of various points with the help of a digital dial gauge due to a load placed at the reciprocal points. A digital dial gauge having least count of 0-.002mm to .01mm with 25mm total travel (with a magnetic base)with supporting stand and a set of weights from 500gms to 10Kgms to be supplied along with.	One
2	ELASTIC PROPERTIES OF DEFLECTED BEAM APPARATUS	Apparatus should consist of a stainless steel beam 2.5cm x 3mm in cross section and 100cm long, pinned to two supports 70cm apart situated symmetrically. One of the ends can be fixed or given a known slope by applying a known moment at the end with the help of suspended loads. At the other end also a known moment can be applied. Vertical loads can be applied at various points along the span of the beam. A digital dial gauge having least count of 0-.002mm to .01mm with 25mm total travel (with a magnetic base)with supporting stand and a set of weights from 500gms to 10Kgms to be supplied along with..	One
3	<b>DEFLECTION OF TRUSS APPARATUS</b>	Apparatus consists of 4 panels of a PRATT truss, each panel being 40-50cm in horizontal direction and 30cm in vertical direction. Load can be applied on each panel point. All tension members are provided with detachable springs with graduations so as to obtain appreciable deformation of the member. Direction of the diagonal members may be changeable. Apparatus can be used to illustrate visually the nature of forces set up in various members of the Truss. Apparatus should be supplied complete with a supporting stand and a set of weights ranging from 1Kg to 20Kg.	One
4	<b>CURVED MEMBER APPARATUS</b>	Apparatus should consists of a steel bar which is used to make the different curved members Viz. circle, semicircle with straight arm, a quadrant of a circle and quadrant of a circle with straight arm. The bottom	One

		ends of the members are fixed to the base. Under the application of load at free end, its horizontal and vertical deflection is measured with the help of dial gauges. A digital dial gauge having least count of 0-.002mm to .01mm with 25mm total travel (with a magnetic base) with supporting stand and a set of weights from 500gms to 10Kgms to be supplied along with.	
5	<b>THREE HINGED ARCH APPARATUS</b>	The model should have span of 100cm and rise 25cm, with hinges at supports and crown. One of the ends rests on rollers. Along the horizontal span of the arch various points are marked at equidistant for the application of load. This being a statically determinate structure, the horizontal thrust developed under the action of any load system can be theoretically calculated and will also be measured directly by neutralizing the outward movement of the roller end. Suitable deflection measuring devices (Dial Gauge) should accompany the apparatus with set of weights.	One
6	<b>BEHAVIOUR OF COLUMN AND STRUTS APPARATUS</b>	Apparatus consists of four steel columns which are put along a vertical wooden board. These four columns have different end conditions as below: <ol style="list-style-type: none"> <li>1. Both ends pinned</li> <li>2. Both ends fixed</li> <li>3. One end pinned and other fixed</li> <li>4. One end fixed and other end free.</li> </ol> Apparatus to be supplied complete with a supporting stand and a set of weights from 500gms to 10Kgms	One
7	<b>Uniaxial Compression test on concrete &amp; bricks</b> (Compression testing Machine)	100 tons capacity (Hand cum electrically operated).Preference will be given to ISI marked.	One

## SURVEYING LAB-I

S. No.	Name of Items	Specifications	Qty
1	Abney Level	Indian /Imported slow motion arrangement with telescopic double drawn to tube.200-400mm	20 units
2	Arrow	Steel Arrows of 6mm dia Ms bars 1metre length with hook at one end and pointed edge on the other end	60 units
3	Auto Level with non magnetic Tripod stand	Duly ISI marked complete to read upto 1 Second of an arc or to an accuracy of 1/10mm	8 units
4	Box Sextant	For measuring angle purposes; box about 75mm dia and 38mm depth with a cover which serves as a handle when screwed to the bottom. Fitted with vernier to read accurately half minute and with magnifier for reading with telescope; in fine case Indian make	10 units
5	Prismatic Compass with stand	Should be made up of non magnetic alloy graduated in circle to read 30minutes or .5degree with sliding prism lens having coloured glasses ,having sighting slit at the top with auto lifter having reflecting mirror on the sight vane. The instrument should be fibrecase packed and telescopic Aluminum stand suitable with the instrument ranging from 100mm to 150mm size.	10 units
6	Open Cross staff with pole	Having size of 150mm Should have 4 vanes at right angles with Iron pole having strong Iron shoe at bottom, made of Brass, in fibre case box.	10 sets
7	Dumpy Level with stand	Made of complete brass and gunmetal having 45 second accuracy sensitive bubble with Aluminium Tripod Stand Duly ISI marked complete to read upto 1 Second of an arc or to an accuracy of 1/10mm	10 units
8	Glass Fiber Tape	<ul style="list-style-type: none"> <li>• 100m</li> <li>• 50m</li> <li>• 30m</li> <li>• 20m</li> <li>• 10m</li> </ul>	06 units each
9	Ceylon Ghat Tracer	Standard Ceylon type	2 units
10	Aluminium Leveling Staff (Telescopic)	Duly ISI Marked 4m (3 fold)	20 units
11	Aluminium Leveling Staff (Telescopic)	Duly ISI Marked5m (3fold)	10 units
12	Line Ranger	Having double prisms in case.	10 units

13	Metallic tape	Freemans Brand ; As per ISI Specifications No. 1269-1958 with latest amendments 10m 15m 20m 30m 50m	5 units (Each)
14	Metric Chain	Made of 8SWG G>I> Wire having brass rings at every one meter and brass tallies at every 5 meters length. Connecting rings to be in oval shape. Both ends of the chain are fitted with brass handles ties in a leather strap conforming to ISI specification No. 1492/1970 1.150 links 30m long 2.100 links 20m long	6 units (Each)
15	Offset rod	Made of square steel pipe painted in red and white colour with strong shoe 2m 3m	20 units (Each)
16	Optical Square	PWD pattern made of Aluminium packed in wooden box.	5 units
17	Tangent Clinometers- Survey of India Pattern	Standard pattern	4 units
18	Plane table (with plumbing fork, plumb bob and spirit level)	!st quality Size 750mmx600mm as per ISI specifications or duly ISI marked made of fine wood fitted with buttons brass washers, screws and board corners duly protected with aluminum corners with brass plate .The accessories are Aidae, Trough Compass, Engineers spirit level U fork Plumb bob and water proof cover	25 units
19	Planimeter	(Digital)-Placom or similar make	6 units
20	Ranging rod	25mm dia ,18 gauge conduit pipe ,painted in black , red and white with solid iron shoe of following sizes: 4m (Folding)	20 units(Each)
21	Spirit Level		50 units
22	Steel Tape	05m 20m 30m 50m	25 units (Each)
23	Surveyor's Compass with folding stand	Should be made up of non magnetic alloy graduated in circle to read 30minutes or .5degree with sliding prism lens having coloured glasses ,having sighting slit at the top with auto lifter having reflecting mirror on the sight vane. The instrument should be fibrecase packed and telescopic Aluminum stand suitable with the instrument ranging from 100mm to 150mm size.	10 units

24	Tachometric Alidade with tripod stand and box	Duly ISI marked complete to read upto 1 Second of an arc or to an accuracy of 1/10mm	10 units
25	Tilting Level with Stand	Duly ISI marked complete to read upto 1 Second of an arc or to an accuracy of 1/10mm	2 units
26	Transit Vernier Theodolite with steel axis and Aluminium telescopic stand	Duly ISI marked complete to read upto 1 Second of an arc	12 units
27	Digital Theodolite	Nikon or Equivalent make or ISI marked	15units
28	Electronic Total Station	ISI marked	1 unit
29	Misc items like wooden Hammer5-10 KG,pegs ,line ranger,Surveyor's Umbrella		10 units each

## BUILDING DRAWING LAB

S. No.	Name of Items	Specifications	Qty
1	<b>Bricklayer's Scaffolding</b>	Model shows ledgers, putlogs, standards, brick and wall. Size about 50 x 20 x 40 cm approx.	One
2	<b>Carpentry Joints</b>	A set of 20 wooden joints in a polished wooden box with nomenclature	One
3	<b>Centering of Arch</b>	Model shows ribs, tie struts, laggings, tammel rods, bearer, easing wedges, posts, sleepers, wall etc. Size about 50 x 15 x 30 cm. approx.	One
4	<b>Collar Beam Truss Model</b>	Model represents a wooden truss. Model is complete with iron straps and names of the parts.	One
5	<b>Corner Window Lintel</b>	Wooden model shows two walls only without shutters. Size about 35 x 40 cm approx.	One
6	<b>Flying Shore</b>	Model shows wall plate, cleats, straining piece, wedges, horizontal strut and inclined struts etc. Model complete on base with walls and names of the parts. Size is about 40 x 20 x 40 cm approx.	One
7	<b>Grillage Foundation</b>	Casted aluminum model shows concrete footing grillage on platform of 1 beam, anti vibration mat, base plate and column. Model complete on wooden base of size about 30 x 25 cm approx.	One
8	<b>Joints of Trusses</b>	Set of four types of models of wooden painted joints are complete with iron straps.	One
9	<b>King Post Truss Model</b>	Model represents a wooden truss complete with iron straps and nomenclature.	One
10	<b>Lean to Roof Model</b>	Wooden model shows part of wall stone carbol, drip moldings, rafters, purlin, slating, eave's board and post. Model complete on a base of about 50 x 40 cm size.	One



11	<b>Model of Bricks</b>	Models of ten different kinds mounted on a base board with nomenclature. (a) Full size of brick with frog (b) Half bat (c) Three quarter bat (d) King Closer (e) Queen Closer (f) Queen Closer quarter (g) Bevelled bat large (h) Bevelled bat small (i) Bull nose (j) Splay Header.	One (Each)
12	<b>Model of Door Leaf</b>	Models of different types without hinges. Size is about 65 x 30 cm approx. Made of timber wood, painted and labeled. (a) Fully paneled Door (b) Ledged & Braced Door (c) Sash Door (d) Half paneled and half glazed Door (e) Flush Door	One (Each)
13	<b>Model of Foundation</b>	Model shows two walls of a room basement, foundation footing, foundation, concrete, sand filling, steps ground level etc. Size about 45 x 40 cm approx.	One
14	<b>Model of Jack Arch Flooring</b>	For four bays, model shows different details such as girders, surrounding concrete arches, floor finish etc. Size about 60 x 12 cm approx.	One
15	<b>Model of Partition Wall</b>	Model shows heads, tie, studs, noggins, doorway, walls etc. Size about 45x 30 cm approx.	One
16	<b>Model of Roof Showing Ridge Hip and Valley</b>	L shaped, one end is provided with a hip and the other end with gable.	One
17	<b>Model of Stair Cases</b>	<ul style="list-style-type: none"> <li>• Bifurcated stairs 75 x 35 cm approx. size</li> <li>• Dog legged stairs 32 x 30 cm approx. size.</li> <li>• Geometrical stairs 35 x 25 cm. approx. size</li> <li>• Quarter Turn stairs 42 x 35 cm approx. size.</li> <li>• Open Well stairs 32 x 30 cm approx. size.</li> </ul>	One (Each)

18	<b>Model of Venetained Door with Surrounding Frame</b>	Model shows style lock rail, venetain blades, panels, hold fasts, hinges tower-bolts etc. Overall size about 70 x 40 cm approx.	One
19	<b>Model of Steel Roof Truss</b>	Model shows different members such as principles rafters, tie, studs, and gusset plate rivets etc. with about 2 m long span.	One
20	<b>Pile Driving Machine Model</b>	Model shows a hoist, pile, hammer guides, sliding base etc. Size is about 60 x 40 cm approx.	One
21	<b>Pneumatic Caisson</b>	Wooden and metallic, dissected model shows main shell with cutting edge at the bottom. The roof should have holes for vertical shaft for the passage of men and material and for the outer air into the working chamber. The model should on a wooden base of about 50 x 50 cm size. Overall height of the model about 60 cm.	One
22	<b>Queen Post Truss Model</b>	Model represents a wooden truss is complete with iron straps and nomenclature	One
23	<b>'T' Beam and Slab Reinforcement</b>	Wooden model shows main girder with secondary girders, pillars reinforcement, flooring, drip hanger etc. Model should complete on base board.	One
24	<b>Two Rooms and Varandah</b>	Wooden model illustrates cross section of a building of two rooms and one varandah with sectional details. Model should complete on a base of size 50 x 40 cm approx.	One
25	<b>Two Storied Building</b>	Sectionised wooden model, flat roof shows different details including stair case. The first floor can be removed to see inside details, four rooms are shown in each floor. Size is about 60 x 60 cm approx.	One
26	<b>Wing Walls</b>	Wooden model of three different types of wing walls are mounted on wooden base of about 40 x 55 cm size approx.	One

## STRUCTURAL ANALYSIS LAB-II

S. No.	Name of Items	Specifications	Qty
1	<b>TWO HINGED ARCH APPARATUS</b>	The model should have a span of 150cm and rise 30cm. Both ends are hinged but one of the ends is also free to move longitudinally. A lever arrangement should fit at end for the application of known horizontal inward force for measuring the horizontal thrust. Along the horizontal span of the arch various points are marked at equidistant for the application of load. This being a statically indeterminate structure of the first degree. A digital dial gauge having least count of 0-.002mm to .01mm with 25mm total travel (with a magnetic base)with supporting stand and a set of weights from 500gms to 10Kgms to be supplied along with.	One
2	<b>REDUNDENT JOINT APPARATUS</b>	Apparatus should consists of three suspension members (spring balances) of different stiffness which are jointed at a point to form the redundant joint. The upper end of the suspension members being tied in a position to a vertical wooden board. Arrangement provided to apply a vertical load at the joint and to measure its horizontal and vertical displacement on a paper and also elongations and forces in the suspension members by the help of dial gauges. Two digital dial gauge having least count of 0-.002mm to .01mm with 25mm total travel (with a magnetic base)with supporting stand and a set of weights from 500gms to 10Kgms to be supplied along with.	One
3.	<b>UNSYMMETRICAL BENDING APPARATUS</b>	Apparatus should consists of an angle of size 1" x 1" x 1/8" or in equivalent metric units of length 80cm is tied as a cantilever beam. The beam fixed at one end such that the rotation of 45 <sup>0</sup> intervals can be given and clamped such that the principal axis of its cross-section may be inclined at any angle with the horizontal and vertical planes. Also arrangement	One

		provided to apply vertical load at the free end of the cantilever and to measure horizontal and vertical deflection of the free end. A digital dial gauge having least count of 0-.002mm to .01mm with 25mm total travel (with a magnetic base)with supporting stand and a set of weights from 500gms to 10Kgms to be supplied along with.	
4.	<b>ELASTICALLY COUPLED BEAM APPARATUS</b>	Apparatus consists of a three parallel bar suspension system with elastic beam at their upper and lower ends. The upper ends of the two outer suspension rods should tied to a vertical wooden board while central suspension rod may be tied to the centre of another elastic beam supported at two outer ends only.	One
5.	<b>PORTAL FRAME APPARATUS</b>	Portal frame should made up of M.S. plate of rectangular section. Frame is provided with a provision to achieve different end conditions viz. hinged, roller & fixed. The size of portal may be 40cm x 60cm. Portal should have a provision for pulley arrangement and hook arrangement for horizontal loading at different positions. A digital dial gauge having least count of 0-.002mm to .01mm with 25mm total travel (with a magnetic base)with supporting stand and a set of weights from 500gms to 10Kgms to be supplied along with.	One
6.	<b>CABLE SUSPENSION BRIDGE APPARATUS</b>	Apparatus to be supplied complete with a supporting stand and a set of weights	One