

ekykuk vktn jk"Vh; çk |kfxdh ILFkku Hkkiky
Maulana Azad National Institute of Technology Bhopal
%Hkkjr ljdkj] f'k{kk e=y; d v/khu jk"Vh; egRo dk ILFkku%
(An Institution of National Importance under MoE, Govt. of India)



Lhfer fufonk iNrK
LIMITED TENDER ENQUIRY

lkexh@oLrduke
Name of Goods/Items

Rotary Inverted Pendulum

Website: www.manit.ac.in
Email Address: info@manit.ac.in

Fax No: 0755-2670562
Telephone No: 0755-4051000, 0755-4052000

vuØef.kdk / INDEX		
Øekd S No	fooj.k/ Description	i"B Øekd Page No.
1	Fufonk vke=.k lpuk Notice Inviting Tenders	03
2	,d utj e egROI.k tkudkfj;k Important Information at a Glance	04
3	ckyhnrk d fy, fun'k Instructions to Bidders	05-08
4	lyxud&A lkexh dh ek=k ,ofooj.k ANNEXURE-I-- Bill of Quantity and Specifications	09-10
5	lyxud& AA eY; ckyh dk çk: i ANNEXURE-II-- Price Bid Form	11

ekykuk vktkn jk"Vh; çk|kfxdh ILFkku] Hkkiky
Maulana Azad National Institute of Technology Bhopal
¼Hkkjr ljdkj] f'k{kke=y; d v/khujk"Vh; egRodk ILFkku½
(An Institution of National Importance under MoE, Govt. of India)

No. MANIT/ECE/2025:08

fnukd@Date:03/11/2025

fufonkve=.k l puk
NOTICE INVITING TENDERS

lkexh@oLr dk uke Rotary Inverted Pendulum
Name of Goods/Items

mijkDr lkexh@oLr d fy, fufonk, vef=r dh tkrh gA bPNd fuekrk@vf/kdr Hkkxhknkj@, tful;k, vf/kd tkudkj dh fy, ILFkku dh oc|kbV www.manit.ac.in vkj CPPP oc|kbV www.eprocure.gov.in/epublish/app ij vf/kd tkudkj dh fy; ykx&bu dj ldr gAfufonk nLrkot MkmuykM dj fof/kor : i l mi&dylfpo ¼Hk.Mkj ,o Ø;¼ekykuk vktkn jk"Vh; çk|kfxdh ILFkku] Hkkiky& 462003 tek fd;k tk ldrk gA

lEi.k fufonk e; nLrkot çLrr dju dh vfre frfFk -25/11/2025- vijkuG 12-00 ctrdgAILFkkufun'kd] fcukdkbdkj.kcrk, fdlh ;k li.kfufonkdkk.k ;k vkf'kd : i l Lohdkj ;k vLohdkjdjudkvf/kdkj l jf{rgA

dylfpo

Tenders are invited for aforesaid Goods/ Items. Interested Manufacturers/Authorized Partner/Agencies may log on Institute website www.manit.ac.in and CPPP website www.eprocure.gov.in/epublish/app for further details. Tender Document can be downloaded and the duly completed be submitted to the Deputy Registrar(Stores & Purchase) Maulana Azad National Institute of Technology- Bhopal- 462003.

Last date of submission of complete tender document is 25/11/2025 up to 12.00 hours. The Director of the Institute reserves the right to accept or reject any or the entire tender in full or in part without assigning any reason whatsoever.

Registrar

ekykukvk t knjk"Vh; çk | kfxdh /LFkku] Hkkiky
Maulana Azad National Institute of Technology Bhopal

, d u t j e e g R o i . k t k u d k f j ; k		
IMPORTANT INFORMATION AT A GLANCE		
f u f o n k Ø e k d , o f n u k d Tender No & Date	No. MANIT/ECE/2025:08	
	Date: 28/10/2025	
f u f o n k d k d k ; { k = @ S C O P E O F T E N D E R		
I k e x h @ o L r d k l f { k l r f o o j . k Brief Description of Goods/Items	I [; k Quantity	f V i . k h Remarks
Rotary Inverted Pendulum	02	I y X u d & A i j f o L r r f o o j . k Detailed Specification at Annexure-I
f u f o n k d h v u e k f u r y k x r Estimated cost of Tender	Rs. 15,00,000/-	
v k i f r , o L F k k i u k d k L F k k u Location of Supplies & Installation	ECE Department at Institute	
f u f o n k n L r k o t d h m i y C / k r k Availability of Tender Document	www.manit.ac.in www.eprocure.gov.in/epublish/app	
f u f o n k t e k d j u d v f r e f n u k d , o l e ; Last Date & Time of Submission of Tender	25/11/2025 up to 12:00 hours	
f u f o n k [k y u d h f n u k d , o l e ; Date & Time of Opening of Bids	25/11/2025 at 15:00 hours	
f u f o n k o / k r k d h v o f / k Tender Validity period	90 days from the date of opening of the Technical Bid	
f o r j . k @ v k i f r d h v o f / k Delivery/ Supply period	04 to 06 weeks from the date of issue of Supply Order	
o k j V h v o f / k Warranty Period	01 year (s) from the date of successful Installation & Commissioning of equipment/ items	
c k y h l j { k k @ c ; k u k j k f ' k Bid Security/ EMD	As per slab mentioned in the document.	
f u " i k n u l j { k k j k f ' k Performance Security Amount	As per slab mentioned in the document	

cl;hnrk d fy;fun'k@vun'k INSTRUCTIONS TO BIDDERS		
1	Scope of Supplies & Work:	
	a	The Goods/ Items shall be supplied as per the Bill of Quantity and Specifications mentioned in ANNEXURE-I . However higher specification of equipment may be considered subject to their cost economics competitiveness.
	b	Bidder should supply illustrated leaflet giving technical details of Goods/ Item and attach the same with the tender to facilitate evaluation.
	c	Bidder should quote the price of only one best & appropriate model of Goods/Item available with them.
	d	Preference to Make In India products (For bids < 200 Crore):Preference shall be given to Class 1 local supplier as defined in public procurement (Preference to Make in India), Order 2017 as amended from time to time and its subsequent Orders/Notifications issued by concerned Nodal Ministry for specific Goods/Products. The minimum local content to qualify as a Class 1 local supplier is denoted in the bid document. If the bidder wants to avail the Purchase preference, the bidder must upload a certificate from the OEM regarding the percentage of the local content and the details of locations at which the local value addition is made along with their bid, failing which no purchase preference shall be granted. In case the bid value is more than Rs 10 Crore, the declaration relating to percentage of local content shall be certified by the statutory auditor or cost auditor, if the OEM is a company and by a practicing cost accountant or a chartered accountant for OEMs other than companies as per the Public Procurement (preference to Make-in -India) order 2017 dated 04.06.2020. Only Class-I and Class-II Local suppliers as per MII order dated 4.6.2020 will be eligible to bid. Non - Local suppliers as per MII order dated 04.06.2020 are not eligible to participate.
	e	Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs). If the bidder wants to avail the Purchase preference, the bidder must be the manufacturer of the offered product in case of bid for supply of goods. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service. If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1+ 15% (Selected by Buyer)of margin of purchase preference /price band defined in relevant policy, such Seller shall be given opportunity to match L-1 price and contract will be awarded for 25%(selected by Buyer) percentage of total QUANTITY.
	f	Where ISI certification marked goods are available in market, procurement should generally be limited to goods with those or equivalent marking only. The warranty/AMC required must be specified
	g	After the supply of Goods/ Items & Accessories as mentioned in the ANNEXURE-I , the bidder has to execute its installation at the designated location(s).No extra cost shall be paid for this reason.
2	Delivery of Supplies & Installation:	
	a	The purchaser interested for complete delivery of equipments along with Installation, Testing and Commissioning within the period as mentioned at IMPORTANT INFORMATION AT GLANCE sheet.However, the bidder has an option to submit the best delivery with installation time.

	b	The material shall be inspected on receipt at site and bidder shall be responsible for any damage during the transit of Goods/Items.			
	c	The insurance cover including insuring the goods against the loss or damage incidental to manufacture or acquisition, transportation, storage and delivery/ installation shall be obtained by bidder in his own name and not in the name of purchases.			
3	Warranty & After Sales Services:				
	a	The bidder shall offer on-site comprehensive warranty of equipments as mentioned at IMPORTANT INFORMATION AT GLANCE sheet at the designated location & shall cover each and every part of the equipments including parts having limited life etc. The purchaser is not liable to pay any extra charges on any account during warranty period.			
	b	The bidder shall ensure to render after sales services during the warranty period to the satisfaction of purchaser.			
4	Eligibility Criteria:				
	a	Bidder should be a Company/Partnership firm/ Proprietary firm/ Agency and operational from at least 03 years (Three) as on close date of tender. Copy of registration shall be attached.			
	b	The Bidder/OEM must have supplied same/similar Goods/ Items in last three years to Central/State government/ Quasi-Government organization/ Public listed company in India. Copies of Purchase Order (PO) shall be attached.			
	c	Bidder/OEM should have minimum annual turnover (Double value of estimated cost of tender) in last year .CA certification in this regard is to be submitted.			
	d	The Earnest Money Deposition Slip/proof of payment.			
	e	Bidder should have GST Number & Income PAN both.			
	f	Bidder should be authorized Distributor/ Dealer/ Partner of Original Equipment Manufacturer (OEM). Copy of Authorization should be submitted.			
5	Earnest Money Deposit:				
	The bidder is instructed to submit EMD in the form of DD/FDR/RTGS/NEFT/BG/Bank deposition slip along with bid to prove the transfer of payment to the purchaser's Account as per EMD slab mentioned below:				
	Tender Value		EMD Rate		Remarks
	Less than 2.50 Lakhs		NIL		
	Between 2.50 lakhs to 25.00 Lakhs		2% of Tender Value rounded off in nearest in 100 rupees.		
	a	Purchaser's Bank Account details:			
		Account Name	Bank Name	A/c No.	IFS Code
		Director MANIT Bhopal	State Bank of India	10020150107	SBIN0001608
	b	The EMD will be returned to the unsuccessful bidders soon after placement of order and successful bidder shall get its EMD after supply of material.			
	c	The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category. Manufacturers for goods and service providers for services are eligible for exemption from EMD under MSE Category. Traders are excluded from the purview of this policy.			
6	Amendment of Tender Document:				
	a	At any time prior to the date submission of bids, the purchaser, may, for any reason, whether at its own initiative or in response to a clarification sought by a prospective bidder, amend bid document by issuing corrigendum. The			

		corrigendum will be notified/ published in e-tendering website www.eprocure.gov.in/epublish/app and Institute website only.
7	Price Bid	
	a	The Prices should be quoted in Indian Rupees only.
	b	Purchaser (being a research Institution) is registered with the Department of Scientific & Industrial Research (DSIR) for the purpose of availing custom duty exemption in terms of GoI Notification No. 51/96-Customs dated 23 July 1996. The bidder should quote their prices considering the exemption certificate. If any certification needed by bidder, may be given to avail this benefit.
	c	Bidder shall take into account all costs including unloading at the location of purchaser, cartage etc. for giving delivery of material at site(s) before quoting the rates. In this regard no claim what so ever shall be entertained.
	d	The bidders are advised not to indicate any separate discount. Discount, if any, should be merged with the quoted unit prices.
	e	The price quoted in price bid shall be firm but subject to change in rate of applicable taxes if any.
	f	The Bidder should avoid the use of vague term such as “Extra as applicable”. Such offers shall be treated as non-responsive.
	g	No extra payment shall be paid on account of any discrepancy in nomenclature of items. The bidder shall seek clarifications if any before submitting the tender.
8	Bid Submission:	
		The bidder is instructed to give their offline offer through two bid system (technical bid and financial bid in separate envelope) for this tender. The tender must be placed in a properly sealed envelope super-scribed “ Tender for the Supply of “Rotary Inverted Pendulum” ” with tender inquiry number and its due date addressed to The Director, Maulana Azad National Institute of Technology- Bhopal- 462003 and must reach the office of The Assistant Registrar- Stores & Purchase, Maulana Azad National Institute of Technology, Bhopal on or before as mentioned at IMPORTANT INFORMATION AT GLANCE sheet. The sealed Envelop should be consisting of followings:
	a	Copy of Certificate of Registration of firm, GST Number and Income Tax PAN.
	b	Copy of Purchase Order (PO) received from government shall be attached.
	c	The Earnest Money Deposition Slip/Proof of payment. If any
	d	Certificate mentioning of Turnover for the last year and OEM authorization letter.
	e	BOQ Annexure-I and Price Bid Annexure-II duly filled and signed.
9	Evaluation of Bids:	
		The Institute may evaluate all the required goods/items in this tender together or independent depending upon nature of items & compatibility and compare the quotations determined to be substantially responsive i.e. which
	a	are properly signed;
	b	Confirm to the eligibility criteria of the vendor; and
	c	Confirm to the terms & conditions, and technical specifications.
	d	In case, required goods/items in this tender are independent and complete in nature. Institute may evaluate independently as far as price is concerned for placing order(s).
10	Validity of Tender:	
	a	The tender shall be valid as mentioned at IMPORTANT INFORMATION AT GLANCE sheet. Terms and financial details submitted in the bid shall be treated as firm during the validity period.
	b	In exceptional circumstances, prior to the expiry of the bid validity period, the

		purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing.		
11	Notification of Award:			
	a	Prior to the expiry of the period of bid validity, the purchaser shall notify the successful bidder, in writing, that its bid has been accepted. The notification letter shall specify the sum that the purchaser will pay to the bidder in consideration of the Supply of Goods/ Items with the details of selected location.		
	b	Purchase/ Contract order shall preferably be issued in favour of bidder. Bidder may request in advance for issuance of Purchase/ Contract order in favour of OEM of product. In this case billing and payment shall be made to OEM only.		
12	Performance Security Deposit: The bidder is required to submit Performance Security in the form of DD/FDR/RTGS/NEFT/BG/Bank Deposit after installation of material along with the bill to the Institute as per slab mentioned below:			
	Order/ Contract Value		PSD Rate	PSD Period
	Less than 2.50 Lakhs		NIL	Warranty period plus two month extra
	Between 2.50 lakhs to 25.00 Lakhs		5% of Tender Value rounded off in nearest in 100 rupees.	
	a	Purchaser's Bank Account details:		
		Account Name	Bank Name	A/c No.
		Director MANIT Bhopal	State Bank of India	10020150107
				SBIN0001608
	b	In case of breach of contract, performance security shall be forfeited and the bidder shall be blacklisted for such period as decided by the competent authority in addition to cancellation of order.		
	c	Performance Security shall be returned to the bidder without any interest, whatsoever, after completion warranty period as specified in the tender.		
13	Penalty Clause:			
	a	The bidder shall indicate the period within which the ordered quantity will be supplied along with Installation & Commissioning of Goods/ Items. The bidder shall note that in case bidder fails to do so within the period of delivery indicated by the bidder in price bid of this tender, penalty @ 0.50 % on total value of the PO per week of delay would be levied subject to maximum 20 weeks. It means, the bidder shall have the liability of delayed supply to the maximum of 20 weeks after expiry of scheduled delivery date.		
14	Terms of Payment:			
	a	The Payment shall be made within 30 days by purchaser after supply and installation of Goods/ Items.		
15	Jurisdiction:			
	a	In the event of any dispute the legal matter shall be subjected to the jurisdiction of Bhopal court only.		
16	Details of Contact Persons for Query if any			
	Name	Dr Suryakant Gautam		Dr R.M. Yadav
	Designation	Assistant Professor		Superintendent
	Tel No	9780894250		78693-01955
	Email	suryakant@manit.ac.in		rmyadav@manit.ac.in

महाराष्ट्र शासन, विद्युत व ऊर्जा विभाग
Maulana Azad National Institute of Technology Bhopal

महाराष्ट्र शासन, विद्युत व ऊर्जा विभाग BILL OF QUANTITY AND SPECIFICATION			
SN	Name of Product/ Items	Qty	Remarks
	Item Title: Rotary Inverted Pendulum • DC Motor Encoder Resolution (Quadrature mode):> 2000 counts/revolution • Pendulum Encoder Resolution (Quadrature mode):> 2000 counts/revolution • Nominal Motor Voltage: ~24 V • Nominal Current: ~0.15 A • No Load Speed:> 5000 RPM • Disk Mass: ~50 grams • Pendulum Length: ~10 cm • Current Sense Resolution: 12-bit with 16-sample PWM synchronized digital filtering • Digital Tachometer: 2 × 32-bit with 12–14 ns resolution • Computer Interface: USB 2.0 or above • Software Compatibility: MATLAB/Simulink (Real-time), Python, C/C++. Major Components: • DC Servo motor base unit • Inertia Disc Module (for position and speed control) • Pendulum Module (for balance control) • Real-time control software for MATLAB/Simulink/Python Expected Curriculum Coverage: a. Inertia Disk Module: • Hardware integration, filtering, step response modeling • Block diagram modeling, parameter estimation • Frequency response modeling, state-space modeling	02	

	• Friction identification, stability analysis • Second-order systems, Routh-Hurwitz, Nyquist stability • PD/lead compensator/proportional control • Steady-state error, load disturbance rejection • Robustness, optimal control • Introduction to discrete control, design and stability b. Inverted Pendulum Module: • Pendulum modeling, moment of inertia estimation • State-space modeling • Swing-up and balance control • LQR state-feedback control • Pole-placement feedback design <u>Warranty:</u> • Manufacturer Warranty: 12 months & must be applicable from the date of installation and commissioning. <u>Installation & Commissioning:</u> • Standard installation scope must include setting up and demonstrating standard functioning of the OEM-supplied equipment. • The machine must be installed within one month from the date of delivery at the campus to avoid deterioration in storage. • Local remote support shall be available during Indian office hours.		
Note: <i>Drawing/ Design is enclosed herewith.</i>			
We confirm with our acceptance to the technical specifications with note as given above			
Date:		BIDDER'S NAME & SIGNATURE WITH SEAL	

ANNEXURE- II	
FORMAT FOR SUBMISSION OF BID PRICE	
To, The Director MANIT- Bhopal- 462 003	

Sub:	Tender Document No. MANIT/ECE/2025:08, Date : 03/11/2025
------	--

SN	Product Description with make & Model	Discounted unit price	Qty	Qty Price	GST	Total Price
1	2	3	4	5	6	7(5+6)
1	Rotary Inverted Pendulum		02			
Total offered Price						
Total (In Words):						
Delivery Period required:						
The followings things are confirmed and undertake by us that:						
a	The price quoted above are inclusive of basic price, statutory levies and taxes, duties, Transportation, Incidental services (including Insurance, Loading/ unloading, Packing & Forwarding charges, Installation etc.) at site.					
b	Taxes are subject to change/ revision.					
c	We agree with the terms and conditions specified in “Instructions to Bidders” and if selected, the execution of supplies would be made in compliance.					

Date:	Signature of Authorized Bidder with proper rubber stamp
	Name:
	Designation:
	Mobile No: