वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्
Council of Scientific & Industrial Research
राष्ट्रीय वांतरिक्ष प्रयोगशालाएं
National Aerospace Laboratories

CSIR - NAL Estd. 1959
ISO 9001 : 2015
Certified Organization

INVITATION FOR BIDS/NIT

Tender No. NAL/PUR/STTD/323/19-Y　　　　　　　　　**Dated: 14-Nov-19**

CSIR- National Aerospace Laboratories (NAL), Bengaluru, India is one of the premier laboratories under Council of Scientific and Industrial Research (CSIR), an autonomous body under Department of Scientific and Industrial Research, Government of India, New Delhi.　CSIR-NAL is a Science and Knowledge based Research, Development and Consulting Organization. It is internationally known for its excellence in Scientific Research in Aerospace Engineering.

The Director, CSIR-NAL invites online quotation for procurement of the following item(s) for day to day research work.

Sl.No.	Description of Items	Unit	Quantity
1	Reliability analysis software with the module or capability of carrying out Fault Tree analysis and Reliability Block diagram analysis.	No	1
2	Reliability analysis software with the module or capability of carrying out Fault Tree analysis and Markov analysis.	No	1
	Please refer Annexure for detailed specification.		

Single / Double Bid	Single
Bid Security (EMD) (in INR)	Rs. 45000/-
Performance Security	10% of the purchase order value

01.　Tender Documents may be downloaded from Central Public Procurement Portal https://www.etenders.gov.in. Aspiring Bidders who have not enrolled/ registered in e- procurement should enroll/ register before participating through the website https://www.etenders.gov.in. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at 'Instructions for online Bid Submission'.

02.　Tenderers can access tender documents on the website (For searching in the NIC site https://www.etenders.gov.in, kindly go to Tender Search option, select tender type and select ' Council of Scientific and Industrial Research' in organization tab and select NAL-Bengaluru-CSIR in department type Thereafter, Click on "Search" button to view all CSIR-NAL, Bengaluru tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website https://www/etenders.gov.in as per the schedule given in the next page.

03.　Either the Indian Agent on behalf of the Foreign principal or the Foreign principal can bid directly in a tender but not both. However, the offer of the Indian Agent should also accompany the authorization letter from their principal. To maintain sanctity of tendering system, one Indian Agent cannot represent two different Foreign principals in one tender.

04.　Unsolicited / conditional / unsigned tenders (Quotations) **shall not** be considered. Quotations received after the due date and time **shall be summarily rejected**.

05.　The Bidder shall comply the terms and conditions of the tender, failing which, the offer shall be liable for rejection.

06.　The Director, CSIR- National Aerospace Laboratories., Bengaluru reserves the right to accept any or all the tenders either in part or in full or to split the order without assigning any reasons there for.

Raman Kumar
(Section Officer S&P)

पी बी सं. 1779, एचएएल एयरपोर्ट रोड , कोडिहल्ली, बेंगलुरु - 560 017, भारत,
P B No 1779, HAL Airport Road, Kodihalli, Bengaluru - 560 017, INDIA
फोन / Phone : (का./ Off) : +91 - 80 - 2508 6040 - 45, फैक्स / FAX : +91-80-2526 9611

http//www.nal.res.in　　　　purchasek@nal.res.in

CSIR-National Aerospace Laboratories, Bengaluru-560 017, INDIA

SCHEDULE CUM CRITICIAL DATE SHEET

1	Name of Organization	CSIR-National Aerospace Laboratories, Bengaluru	
2	Tender Reference No	NAL/PUR/STTD/323/19-Y dated: 14-Nov-19	
3	Tender Type (Open/Limited/EOI/Auction/Single)	Open Tender	
4	Type/Form of Contract (Work / Supply / Auction / Service / Buy / Empanelment / Sell)	Supply	
5	No of Covers (One/Two/Three/Four)	One	
6	Tender Category (Services/Good/Works)	Goods	
7	Allow Resubmission (Only in online mode within scheduled period)	Yes	
8	Allow Withdrawal (Only in online mode within scheduled period)	Yes	
9	Allow Offline Submission	No	
10	Work Item Title	Reliability analysis software with the module or capability of carrying out Fault Tree analysis and Reliability Block diagram analysis & Markov analysis.	
11	Work Description	Reliability analysis software with the module or capability of carrying out Fault Tree analysis and Reliability Block diagram analysis & Markov analysis.	
12	Delivery Schedule	30 days from the date of purchase order	
13	Product Category (Civil Works / Electrical Works / Fleet Management / Computer Systems)	R & D Equipment	
14	Is Multi Currency Allowed	Yes	
15	a) Tender Publishing Date -	15-Nov-19	1800 Hrs
	b) Document Download Start Date-	15-Nov-19	1800 Hrs
	c) Bid Submission Start Date-	15-Nov-19	1800Hrs
	d) Bid Submission End Date-	05-Dec-19	1000 Hrs
	e) Bid Opening Date-	06-Dec-19	1100 Hrs
16	Bid Validity Days	90 days	
17	Address for communication	Stores and Purchase Officer CSIR-National Aerospace Laboratories, HAL Airport Road, Kodihalli, Bengaluru - 560017	
18	Inviting Officer	Director, CSIR-NAL	
19	Contact No	25086040, 25086041	
20	E-mail Address	purchasek@nal.res.in	
21	Detailed specification of item	Refer Invitation for bids / NIT	
22	Tender Terms & Conditions & Instruction for online bid submission	The prospective bidders are requested to refer to the Standard Tender Document available on NAL Internet (www.nal.res.in) under the icon Tender-Purchase before formulating and submitting their bids	

Detailed Technical Specifications

Requirement: A Reliability analysis Software that should have the capability of Fault Tree Analysis (2 Licenses), Reliability block diagram analysis (1 License) and Markov Analysis (1 License). The software should have the minimum capability to run on Operating Systems like Windows 7, 8, 10, Vista etc. The compatibility to run on other Operating Systems would also be highly desirable. Similarly the inter-operability of outputs, inputs (file formats) with other similar software's is desirable.

The features expected from these modules are as listed under:

1. **Fault Tree Analysis:**
   - Minimal Cut set Analysis
   - Show the Critical Path
   - Importance Analysis
   - Sensitivity Analysis
   - System Quantification
   - Drag-and-drop Gates and Events between libraries and projects
   - Display various Gate and Event information on the diagram
   - Sort Events by name, unreliability or manually
   - Edit Project, System, Gate and Event information and parameters using Dialog and Grid views
   - Allow changing of colour and sizes of gates and events
   - System navigation using system hierarchy and diagram windows
   - Adjusts and resizes label and text boxes
   - Easily transfer Tree diagram into other applications such as Microsoft Word, Pdf etc.

2. **Reliability Block Diagram analysis:**
   - Analysis of the reliability of systems and sub-systems
   - Minimal Cut set Analysis
   - Easy construction of network diagrams using point and click or drag and drop techniques
   - Importance Analysis
   - Sensitivity Analysis
   - System Quantification
   - Easily transfer diagram into other applications such as Microsoft Word, Pdf etc.

3. **Markov analysis:**
   - Markovian Modelling and Analysis
   - Graphical Markov model editor
   - Time-based reliability analysis. Represented using a state-transition diagram,
   - Time dependent Analysis and
   - Phase based Analysis

Training: A basic training of approximately 2-3 days on the use of Software at NAL Premises is mandatory.