

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

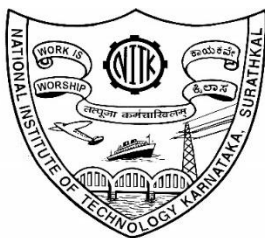
POST-SRINIVASNAGAR, MANGALURU – 575 025 (D K)
DEPARTMENT OF MECHANICAL ENGINEERING

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TENDER DOCUMENT

Tender Notification No: NITK/CSR/BP/Project/2023-24/04

Date: 17/09/2024

Name of Goods	Supply, Installation, Commissioning of 1000 kg per day Pre-fabricated Biogas Plant for Organic Waste at Paradip, Odisha
The estimated amount put to Tender	₹ 44,00,000 (Including GST) (Refer Section 1B,37)
EMD Amount (2% of estimated amount)	88,000
Time for Supply of item	150 Days for commissioning
Date, Time & Venue of Pre-Bid Conference	26/09/2024, 03.30 PM, CCMT, Main building, NITK Surathkal (Refer Section 1 B, Clause No. 35)
Bid Document Download Start Date	17/09/2024, 05.00 PM
Clarification Start Date	17/09/2024, 05.00 PM
Clarification End Date	24/09/2024, 04.00 PM
Online Bid Submission Start Date	17/09/2024, 05.30 PM
Online Bid Submission End Date	09/10/2024
Address for Submission of Tender	https://eprocure.gov.in/
Date of opening technical bid	10/10/2024
Contact Details of Buyer	Dr. Vasudeva Madav, Associate Professor, Department of Mechanical Engineering, National Institute of Technology Karnataka, Surathkal, Srinivasnagar, Pin-575025, India, Phone:0824 2473670, Mobile: 9008889796, Fax: 91-824 -2474033, E-mail: vasu@nitk.edu.in
Purchase officer Name and Contact (Related to purchase inquiry)	Superintendent (purchase) Phone: +91-824-2473014,3114 Email: supdt-purchase@nitk.edu.in

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NOTICE INVITING e-TENDER (e-NIT)

The National Institute of Technology Karnataka, Surathkal (in short – NITK, Surathkal) is an Institute Of National Importance under Ministry of Education, Govt of India imparting Technical Education and engaged in Research Activities.

Online Tenders(<https://eprocure.gov.in/>) are invited for the following items in **two cover systems** (i.e., Technical bid and financial bid) subject to the following terms and conditions, from the reputed manufacturers or its authorized dealers so as to reach this office on or before scheduled date and time. The tender (Technical bid) will be opened online on the due date as mentioned. Bidders can verify their bid status through the online portal <https://eprocure.gov.in/>. The financial bid of only such bidders whose technical bid is accepted shall be opened on the same day or later pre-informed date.

Name of Goods	Supply, Installation, Commissioning of 1000 kg per day Pre-fabricated Biogas Plant for Organic Waste at Paradip, Odisha
Estimated Cost	₹ 44,00,000 (Including GST) (Refer Section 1B,37)
EMD Amount (2% of estimated amount)	88,000
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Address for Submission of Tender	https://eprocure.gov.in/
Date of opening technical bid	10/10/2024
Contact Details of Buyer	Dr. Vasudeva Madav, Associate Professor, Department of Mechanical Engineering, National Institute of Technology Karnataka, Surathkal, Srinivasnagar, Pin-575025, India, Phone:0824 2473670, Mobile: 9008889796, Fax: 91-824 –2474033, E-mail: vasu@nitk.edu.in

Sd/
HOD
Seal & Signature

SECTION 1 A: Instructions for Online Bid Submission

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submit their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at: <https://eprocure.gov.in/eprocure/app>.

REGISTRATION

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link "**Online bidder Enrollment**" on the CPP Portal which is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email addresses and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra, etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID/password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

- 1) There is various search options built-in in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords, etc. to search for a tender published on the CPP Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents/tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification/help from the Helpdesk.

PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- 2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the documents that need to be submitted. Any deviations from these may lead to the rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document/schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with the black and white option which helps in reducing the size of the scanned document.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates, etc.) has been provided to the bidders. Bidders can use the "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for the bid submission process.

Note: My Documents space is only a repository given to the Bidders to ease the uploading process. If Bidder has uploaded his Documents in the My Documents space, this does not automatically ensure these Documents being part of the Technical Bid.

SUBMISSION OF BIDS

1. Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
2. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
3. Bidder has to select the payment option as "online" to pay the tender fee / EMD as applicable and enter details of the instrument.
4. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white-colored (unprotected) cells with their respective financial quotes and other details (such as the name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
5. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, the opening of bids, etc. The bidders should follow this time during bid submission.
6. All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128-bit encryption technology. Data storage

encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system-generated symmetric key. Further, this key is subjected to asymmetric encryption using buyers/bid openers' public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

7. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

8. Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

9. The bid summary has to be printed and kept as an acknowledgment of the submission of the bid. This acknowledgment may be used as an entry pass for any bid opening meetings.

10. The off-line tender shall not be accepted and no request in this regard shall be entertained whatsoever.

11. All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.

12. Any order resulting from this e-tender shall be governed by the terms and conditions mentioned therein.

13. No deviation from the technical and commercial terms & conditions are allowed.

14. The tender inviting authority has the right to cancel this e-tender or extend the due date of receipt of the bid(s).

ASSISTANCE TO BIDDERS

1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

2) Any queries relating to the process of online bid submission or queries relating to CPP Portal, in general, may be directed to the 24x7 CPP Portal Helpdesk.

SECTION 1B: INSTRUCTION TO BIDDER (ITB)

1. The bid should be submitted in two covers **System-Technical Bid and Financial Bid** through <https://eprocure.gov.in/>
2. **Technical Bid: Documents related to the Technical Bid** should be submitted in PDF format through the E-Tendering portal <https://eprocure.gov.in/>.
3. **The Technical Bid should contain the following documents:**
 - a) Compliance statement of specifications as per **Annexure - 'A'**.
 - b) License certificate for manufacture /supply of the item & Factory license
 - c) Agreements/Purchase Orders/Completion certificates if any, for similar items from other Universities, Institutes, and Government Department/Undertakings/Public sectors the details of such supplies for the preceding three years should be given together with the prices eventually or finally paid with contact details of persons as per **Annexure – 'B'**.
 - d) List of Owner/partners of the firm and their contact numbers (Bidder Information)
 - e) Declaration of abandoned or suspended any awarded service & Blacklist Certificate. **Annexure 'C'**
 - f) Integrity Pact (for procurements above Rs1.0 Crore (Rs10.0 Million). **Annexure 'D'**
 - g) Copy of GST certificate & PAN No.
 - h) Catalog of the Product with detailed product specifications.
 - i) Undertaking that the successful BIDDER agrees to give a Performance Security amounting to 3% of the purchase order value in favor of "The Director, NITK Surathkal".
 - j) A copy of the Balance sheet, Profit & Loss A/c., Trade or Manufacturing A/c for the last 3 years should be enclosed and the turnover must be 30% of the estimated cost.
 - k) Duly filled in the checklist should be submitted along with the Technical Bid.
 - l) The contract form given in Section 5 needs to be submitted.
 - m) EMD must be in the form of Bank Guarantee **Annexure-J** (Fixed Deposit Receipt/Insurance surety bonds/DD/e-Payment mode (through Credit/Debit cards / Net Banking). It will be valid for 180 days from the date of opening of the tender. In case of EMD payment made through E-Payment, UTR Number with details should be uploaded. The firm registered with MSME/NSIC as per MSME procurement policy order 2012 will be exempted from submission of EMD. Intended parties will have to give proof of registration along with their tender. EMD of the unsuccessful bidders shall be refunded without any interest at the earliest after finalization of the purchase of the concerned item.
 - i) The EMD will be returned to the BIDDERS(s) whose offer is not accepted by NITK within one month from the date of the placing of the purchase order(s) on the selected BIDDER(s). In the case of the BIDDER(s) whose offer is accepted the EMD will be returned on submission of Performance Security in the form of Bank Guarantee (BG). However, if the return of EMD is delayed for any reason, no interest/penalty shall be payable to the Bidders.

ii) The successful BIDDER, on the award of contract/order, must send the contract/order acceptance in writing, within 15 days of award of contract/order failing which the EMD will be forfeited.

iii) The EMD shall be forfeited in case a successful BIDDER fails to furnish the Performance Security.

iv) Bidder should prepare the EMD as per the instructions specified in the tender document. The original EMD should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission as specified in the tender documents. The details of the BG/DD/FD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise, the uploaded bid will be rejected.

- n) The bidder needs to comply with restrictions under rule No 144 (xi) of GFR (General Financial Rules) 2017 and the clause pertaining to Public Procurement Division Order (Public Procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 and 24.07.2020 of Dept of Expenditure (DOE), Ministry of Finance). In this Connection Bidder has to submit Self Certification (as per Annexure G or H), depending on the status of the bidder.
- o) The bidder needs to submit a Self-certification in line with Make in India, Public Procurement Order No. **P-45021/2/2017-BE-II dt. 15.06.2017, P 45021/2/2017-PP (BE-II) dated 28.05.2018, P-45021/2/2017-PP (BE-II) dated 29.05.2019 and P45021/2/2017- PP (BE – II) dated 16.09.2020 of DPIIT, Ministry of Commerce & Industry**. The Bidder who will not meet this criterion will be rejected in the technical bid. The Self-certification should be provided as per Annexure I.

4. **Financial bid:** The bidders should submit their financial bid as per the format given in Section 4 (A standard BoQ format has been provided with the tender document in the form of an Excel sheet) of the Notice Inviting Tender in the online bid through the e-Tendering portal <https://eprocure.gov.in/>. After evaluation of technical bid, the technically successful bidder shall be intimated to witness the opening of their financial bid along with the date, time and venue through e-mail. The financial bid of only those bidders will be opened who are declared "Technically Successful or Technically Responsive".

5. **Bid Evaluation:**

On the due date, the Technical bids will be opened and referred to the Purchase Committee which is duly constituted by the Director, NITK. The committee will go through the technical aspects of the tender and recommend shortlisted firms. The recommendation of the committee is final and binding on all the parties. The committee may visit the manufacturing site to assess the capabilities to manufacture the tendered items as per the specifications. In case of any remarks/default noted, the Company will be debarred from competing for bids in our esteemed Institute for a period of one year from the date of occurrence of such breach.

6. **Quoting of Price(s):**

- a. The Indian bidder should quote firm prices in the Indian rupee only unless otherwise specified elsewhere in this tender. Prices quoted in any other currency shall not be considered.
7. The Bid will be accepted only from the manufacturers (OEM) or its authorized supplier.
 8. **The Institute reserves the right to visit the factory before or after the issue of supply order to satisfy itself regarding the quality of production. In case of any remarks /default noted, the Company will be debarred from competing for bids in our esteemed Institute for a period of one year from the date of occurrence of such breach.**
 9. **The item to be used is strictly according to the specification and subject to test by the Institute/concerned authorities. It must be delivered and installed in good working condition.**
 10. The incomplete or conditional tender will be rejected.
 11. The Institute reserves the right to cancel at any time after acceptance of the tender with a notice. The Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which might have derived from the execution of the supply.
 12. **Performance Security:** The successful bidder shall deposit performance security of 3% of the quoted price in the form of Bank Guarantee (**ANNEXURE -F**) / Demand Draft / Fixed Deposit Receipt of any scheduled bank drawn in favour of **The Director, NITK Surathkal, Mangaluru** payable at Mangaluru. In case the bidder fails to deposit the said Performance Security within the stipulated period, including the extended period if any, the Earnest Money Deposited by the bidder shall be forfeited automatically without any notice. Please note the following points:
 - a) **Successful bidder should submit performance Security as prescribed above to the purchase Section, NITK Surathkal, on or before 30 days from the date of issue of order acknowledgment.**
 - b) Performance Security shall be for the due and faithful performance of the contract and shall remain binding, notwithstanding such variations, alterations for extensions of time as may be made, given, conceded, or agreed to between the successful bidder and the purchaser under the terms and conditions of acceptance to tender.
 - c) The successful bidder is entirely responsible for the due performance of the contract in all respects according to the terms and conditions of the tender.
 - d) The validity of the Performance Security must cover the warranty period plus two months.
 13. **The validity of bids:** The rate quoted should be valid for a minimum of 180 days. No claim for escalation of the rate will be considered after opening the Tender. The bid validity date will start from the last date of bid submission (Including date corrigendum)
 14. **Warranty/Guarantee & On-site skill support:** On-site comprehensive warranty will be effective from the date of successful installation and commissioning. The OEMs/Authorized Distributors and Dealers must attach a certificate of sales and service facilities, escalation support for on-call service or station engineer, etc.

15. **Clarification of Tender Document:** Through pre-bid Conference (Under Section 1, clause No. 35).
16. **Amendment of Tender document:** At any time before the last date for receipt of bids, Institute may for any reason, whether at its initiative or in response to a clarification requested by a prospective bidder, modify the Tender document by an amendment. Further, Institute may at its discretion extend the last date for the receipt of bids.
17. The bids shall be written in the English language and any information printed in another language shall be accompanied by an English translation, in which case for the purpose of the interpretation of the bid, the English translation shall govern.
18. The Institute reserves the right of accepting any bid other than the lowest or even rejecting all the bids. The decision of the Purchase Committee is final in all matters of tender and purchase.
19. **Cancellation of Tender:** Notwithstanding anything specified in this tender document, NITK Surathkal in its sole discretion, unconditionally and without having to assign any reasons, reserves the rights:
- a) To accept OR reject the lowest tender or any other tender or all the tenders.
 - b) To accept any tender in full or in part.
 - c) To reject the tender offer not conforming to the terms of the tender.
 - d) To give purchase preference to Public Sector undertakings when applicable as per Govt. Policy/ Guidelines.
20. **Delivery Period:** The Delivery Period/Time shall be deemed to be the essence of the Contract and delivery must be completed not later than such date(s). If the Supplier does not perform its obligations within the Delivery Period/Date mentioned in the Contract, the same would constitute the breach of the Contract and the Institute shall have the right to cancel or withdraw the Contract for the unsupplied portion after the expiry of the original or extended delivery date or period stipulated in the Contract. Such cancellation of the contract on account of non - performance by the Supplier would entitle the Buyer to forfeit the EMD/Performance Security besides other actions such as debarment from the Institute as per GFR 2017.
21. **Liquidated Damages:** Timely delivery is the essence of the contract and hence if the Supplier fails to deliver Goods within the original/extended delivery period(s) specified in the contract, the Institute will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, **@ 1% per week or part of the week of the delayed period** as pre-estimated damages not exceeding 5% of the contract value without any controversy/dispute of any sort whatsoever.
22. **Terms of Payment:**
- a. Payment within 30 days from the date of delivery, installation and acceptance certificate of concerned Department/Section/Purchase Section.

- b. Payment shall be made by Cheque or such other mode/electronic fund transfer offered by the Bank. NITK, Surathkal will not pay advance payment to the party. Any request for Advance payment will be rejected summarily. In case if it is necessary, the advance payment will be paid strictly against Bank Guarantee only.
 - c. Payment will be made by Standard Payment terms and conditions of NITK, Surathkal as per tender document only. Any request for a change in payment terms and conditions will not be accepted.
 - d. If the above conditions are not acceptable then tender will be rejected.
23. Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bid as to the nature of the installation site, the means of access to the site and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the installation to be done and local conditions and other factors having a bearing on the execution of the bid.
24. If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the bidder.
25. The rate quoted by the bidder **shall be firm throughout the contract** period and there shall be no revision of the rates for any reasons whatsoever. It should be clearly understood that any claim for changes will not be entertained in any case once the bids are opened.
26. **One bid per bidder**: Each bidder shall submit only one bid either by himself or by representing a firm.
27. **Cost of bid**: The bidder shall bear all costs associated with the preparation and submission of his bid. The Institute in no case shall be responsible or liable for those costs.
28. The bidder shall not make or cause any alteration, erasure, or obliteration to the text of the tender document.
29. The Institute will declare a bidder ineligible, either indefinitely or for a specified period of time, at the sole discretion of the Institute, for the award of contract/ participating in any other tender, if at any time the Institute determines that he has furnished false information/ engaged in corrupt or fraudulent practices.
30. If any overpayment is detected as a result of the post-payment audit, it shall be recovered by the Institute from the Supplier out of his Performance Security.
31. **Determination of successful bidder**: The technically qualified bidder whose offer is evaluated as the **lowest total bid** shall be the successful bidder subject to its meeting the statutory requirements.

32. **Price variation:** The rate quoted by the bidder shall be firm throughout the contract period. No price variation clause applies to this contract.

33. **CANVASSING:**

- a) Canvassing in connection with tenders is strictly prohibited and the Tenders submitted by the Tenderers who resort to canvassing shall be liable to rejection.
- b) Subject to the provisions concerning clarification of Bids, no Bidder shall contact the purchase committee on any matter relating to its bid from the time of the bid opening up to the time that the contract is awarded.
- c) Any effort by the Bidder or Bidder's representative however described to influence the purchase committee in any way concerning scrutiny, consideration, evaluation of the Bid(s) or decision concerning award of contract shall entail rejection of Bid and action against the bidder as deemed fit.
- d) The purchase committee will deal with the Bidder on a Principal basis, without involvement in any manner in India or abroad of any agent or consultant or associate or another person howsoever described.

34. **Legal Matter:** All Domestic and International disputes are subject to Mangaluru Jurisdiction only.

35. **Pre-Bid Conference:**

- a) All prospective bidders are requested to kindly submit their queries through E-mail to vasu@nitk.edu.in & cc to hodmechanical@nitk.edu.in so as to reach the buyer, on or before 4.00 p.m. on **24/09/2024**
- b) A Pre-bid Conference shall be held as indicated in Invitation to Bid. All prospective bidders are requested to kindly attend the Pre-bid Conference. In order to facilitate NITK for the proper conduct of the Pre-bid Conference, all prospective bidders are requested to kindly submit their queries through E-mail to the indicated mail address (with Tender No. and Date) so as to reach the Buyer as indicated in Invitation to Bid.
- c) NITK shall answer the queries during the pre-bid conference, which would become a part of the proceedings of the Pre-bid Conference. These proceedings will, in turn, become a part of clarifications/amendments to the bidding documents and would become binding on all the prospective bidders. These proceedings would also be hosted on the NITK website www.nitk.ac.in for the benefit of all prospective bidders. Before formulating and submitting their bids, all prospective bidders are advised to surf through the NITK website after the Pre-bid Conference, in order to enable them to take cognizance of the changes made in the bidding document.
- d) Any Statement made at the pre-bid conference shall not modify the terms of the bidding documents unless such statement is made part of clarification in the proceeding of the Pre-Bid Conference
- e) Only queries formally submitted in advance, will be answered in the pre-bid conference and will become part of the Corrigendum/Amendment.

36. Relaxation for startups, MSEs, Make in India will be as per GOI norms.
37. Estimated price put up in tender is inclusive of all.
38. Abnormally quoted low bid will be liable for rejection as per the OM No.F.12/17/2019-PPD of Department of Expenditure, Ministry of Finance dated 6th February 2020.

eREVERSE (FORWARD) AUCTION INSTRUCTIONS FOR BIDDERS

1. Tender Cum Auction is a combination of Tender Followed by Auction (Reverse/Forward Auction). It is also called as eRA. 2.0
2. In eRA, Tendering process will be followed as per the instructions given in NIT/Tender Documents. Subsequently, Reverse (or Forward) Auction as the case may be, will be conducted amongst techno-commercially qualified / approved bidders after Opening of Financial/Price Bids' online. The Reverse (or Forward) Auction will be normally initiated after Opening of Price Bids. There will be no participation fees for Auction.
3. Only such bidders - who have been found techno-commercially qualified as per requirements of the tender will be permitted to participate in the Reverse (Forward) Auction.
4. After opening of the price (financial) bids and System displays L1 (or H1) price based on either over all basis or item wise/lot basis automatically. Using this system provided price, which would be auction start price (can be changed, if required), procuring entity will create Reverse (Forward) Auction and publish the same.
5. The Techno-commercially qualified bidders will receive Auction information through SMS & email. The participating bidders get an opportunity to revise their prices (reduce in case of Reverse Auction and increase in case of Forward Auction). It allows bidders multiple opportunities to offer a price.
6. Procedure in submission of bids by the bidders during Reverse/Forward auction online.
 - 6.1 Bidders shall login using their login ID & Password and then using DSC.
 - 6.2 Click on My Auctions button given in left side of page, to view Auction details for which Techno- Commercially qualified.
 - 6.3 For participating in Live Auction,
 - Click on Live Auction Button.
 - Click on View button to participate in interested Auction.
 - There is List of qualified Lots in which Bidder can participate against selected Auction. Click on Hammer Icon to participate in the respective lot.
 - On clicking Hammer Icon, system will show Start price, Decremental (or incremental) price and Current price against lot. Current Price is appears as Blank in case no bidder has offered price.

- Enter your Price in 'My Auction Price' in multiples of decremental (incremental) value up to above (below) Max Seal % value, and then sign it digitally by clicking on Sign Icon and Click on submit button.
- System will show your Latest Value / Price Quoted and system will also show Least Amount/ Rate which any Bidder would have quoted.

7. Terms and conditions for Reverse (Forward) Auction are as follows:

7.1 Reverse (Forward) Auction will be initiated after opening of price bids. The schedule of Reverse (Forward) Auction shall be intimated to the bidders by the system through their registered email and SMS to mobile number.

7.2 Only those bidders whose price bid has been opened by the Tender Inviting Authority shall be eligible to participate in Reverse (Forward) process. However, in case of in Reverse Auction process, the H1 bidder whose quote is highest during tender will not be allowed to participate as per H1 elimination policy. Similarly, in case of in Forward Auction process, the L1 bidder whose quote is lowest during tender will not be allowed to participate as per elimination policy.

7.3 Bidders are advised to read the 'Reverse (Forward) Auction terms and conditions' details of Reverse (Forward) Auction event carefully, before auction event.

7.4 Reverse (Forward) Auction can be held in two ways as indicated in the tender either on the Total overall cost of items/works or on Item wise/ Lot wise.

7.5 The 'Starting price' i.e., Start price and bid decrement (increment) price for Reverse (Forward) Auction will be decided by the Tender Inviting Authority.

7.6 Bidders shall be able to view the following on their screen along with the necessary fields during Online Reverse Auction:

7.6.1 Current Bid Price in the Auction.

7.6.2 Start Price.

7.6.3 Decrement (or Increment) value.

7.7 The bidding direction in case of Reverse Auction is downward and for Forward Auction is upward.

7.8 In case of Reverse Auction, in order to displace a standing lowest bid and to become "L1", a bidder can offer a minimum bid decrement or in multiples of decremental value up to above Max Seal %. For ex: Current Price: - Rs. 49,000 Decrement value: - Rs. 1000 System Defined Maximum Seal %: - 50, in this case a bidder can quote minimum decrement amount as Rs 49,000-1000= Rs. 48,000 and maximum decrement amount is $49000 - 24500 - 1000 = 23500 = 24000^*$. In case of Forward Auction, in order to displace a standing highest bid and to become "H1", a bidder can offer a minimum bid increment or in multiples of incremental value up to or below Max Seal %. For ex: Current price: - Rs. 49,000 Incremental values: - Rs. 1000

Defined Maximum Seal %: - 50, in this case a bidder can quote minimum increment amount as Rs 49,000+1000= Rs. 50,000 and maximum increment amount as 49000+24500+1000=74500=74000*. This continues as an iterative process.

- 7.9 The system will not disclose the name of the L1 (H1) bidder, number of bids and names of the bidders on the portal to anybody prior to the completion of Reverse/Forward auction process.
- 7.10 There shall be no communication between the Tender inviting Authority and bidders and among bidders.
- 7.11 Bidders only see the lowest (highest) bid during Reverse (Forward) auction. At no point of time will any bidder see the name of other bidders or the prices of bidders other than the lowest bid.
- 7.12 After the completion of the online reverse(forward) auction, all bidders who have participated in Reverse (Forward) will see the L1(H1) price in Auction and further processing will be done by Tender Inviting Authority.
- 7.13 In case of no participation by techno-commercially qualified bidders in Reverse (Forward) Auction, the Tender price bids received during tender will be processed.
- 7.14 In case of auction on total value of items/works, the successful bidder may be required to submit a letter for price confirmation and rates of individual items/works within stipulated number of days after completion of Reverse (Forward) Auction event, besides sending the same by registered post / courier to the tender inviting authority.
- 7.15 Any variation between the final bid value during RA and that in the confirmatory letter forwarded will be advised to re-work and submit.
- 7.16 Server time shall be the basis of Start Time and Closing time for bidding and shall be binding for all.
- 7.17 All electronic bids submitted during the reverse(forward) auction process shall be legally binding on the bidder.
- 7.18 The chronologically last bid submitted by the bidder till the end of the auction will be considered as the valid price bid offered by the bidder and acceptance of the same by Tender Inviting Authority will form a binding contract between Tender Inviting Authority and the bidder for entering into a contract.
- 7.19 The last successful bid price quoted by bidder will be considered as valid price at any point of time during Auction.
- 7.20 If a bidder does not submit bid in the Reverse/forward Auction, the price quoted by them in the price bid shall be considered as the valid price of that bidder. The status of the bidder (L1, L2 etc) shall be evaluated considering either the bid price submitted in Reverse/Forward Auction or the price quoted in the price bid, whichever is lower.
- 7.21 In case of disruption of service at the service provider's end while the Reverse (Forward) Auction is live due to any technical snag or otherwise attributable to the system failure at the server end, Tender Inviting

Authority in consultation with Application Administrator may decide to extend auction if required as per system malfunction procedure displayed in the home page of the website. In this case, the status quo of Auction will be maintained prior to failure and process would continue from that point onwards.

8. Post auction procedure: The Tender Inviting Authority will proceed with the Lowest (Highest) Bid in the Reverse (Forward) Auction for further processing.
9. Schedule for Reverse Auction: The Reverse (Forward) Auction schedule will be intimated later on through e-mail and SMS after opening the price bid.
10. Auction extension time: If a bidder places a bid in the last {5} minutes of closing of the Reverse Auction and if that bid gets accepted, then the auction's duration shall get extended automatically for another {10} minutes, for the entire auction from the time that bid comes in. Please note that the auto-extension will take place only if a bid comes in those last {5} minutes and if that bid gets accepted as the lowest bid. If the bid does not get accepted as the lowest bid, the auto-extension will not take place even if that bid might have come in the last {5} minutes. In case, there is no bid in the last {5} minutes of closing of Reverse Auction, the auction shall get closed automatically without any extension. However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc. The above process will continue till 10 times extension is given during Reverse Auction. All bidders, regardless of their previous position, can submit their bid during the extension period also.
11. Bidding currency and unit of measurement: Bidding will be conducted in Indian Rupees as indicated in the tender.
12. Validity of bids: Price shall be valid for a period of defined number of months from the date of reverse auction. These shall not be subjected to any change whatsoever.
13. Bidders' bid will be taken as an offer to execute the work (or to award supply of the item) as per enquiry no. {.....} dt. {.....}. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, action shall be initiated as per the tender terms and conditions.
14. The Tender Inviting Authority decision on award of contract shall be final and binding on all the Bidders.
15. The Tender Inviting Authority reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with intimation to bidders.
16. The Tender Inviting Authority reserves the right to suspend or pause the reverse auction, if required. In such cases, as per discretion of Tender Inviting Authority, auction may be reopened.

17. The Tender Inviting Authority shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of Tender Inviting Authority shall be binding on the bidders.
18. Failure of power or loss of connectivity at the premises of bidders during the Reverse (Forward) auction cannot be the cause for not participating in the reverse (forward) auction. On account of this, the time for the auction cannot be extended and the organisation is not responsible for such eventualities.
19. Other terms and conditions shall be as per tender.
20. Bidder shall not divulge Bids or any other exclusive details of the organisation to any other party. If the Bidder or any of its representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action will be taken against such bidders as per banning procedure of the organisation.
21. Tender price bid (s) means the price bid (s) received during tendering for the items/work/services.
22. Auction closing price bid means the lowest (highest) online price bid received after the completion of Reverse (Forward) Auction.
23. All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.
24. Any order resulting from this e-tender shall be governed by the terms and conditions mentioned therein.
25. No deviation to the technical and commercial terms & conditions are allowed.
26. The tender inviting authority has the right to cancel this e-tender or extend the due date of receipt of the bid(s).

****Disclaimer**** Bidders are advised to exercise caution and not respond to any unknown calls, emails, or embedded links requesting payment for participating in the tender or for any other purpose. Please note that NITK Surathkal never asks for any tender fee for participation in tenders or bids.

SECTION 2: CONDITIONS OF CONTRACT.

1. The supplier should quote the rate for Door Delivery (FOR).
2. The Rate should be quoted in INR only.
3. The item should be landed at NITK Surathkal and this responsibility is with the bidder.
4. No custom duty exemption certificate will be provided from the institute.
5. The rate quoted should be on a per-unit basis. Taxes and other charges should be quoted separately, considering exemptions, if any.
6. The rate quoted should be inclusive of Testing, Commissioning and Installation of Equipment and Training.
7. **Payment:** No advance payment will be made. Payment will be made only after the supply and installation of the item in good and satisfactory condition and receipt of performance security by the supplier.
8. Guarantee and Warranty period should be specified for the complete period conforming to Section 3 of this tender document.
9. The period required for the supply and installation of Equipment should be specified conforming to Section 3 of this tender document.
10. In case of dispute, the matter will be subject to Mangaluru Jurisdiction only.
11. **Depending on the availability of funds the purchase order of the additional accessories will be decided.**

SECTION 3: SCHEDULE OF REQUIREMENTS, SPECIFICATIONS AND ALLIED DETAILS

[To be filled up by the Department / Center of NITK, Surathkal]

Item(s) Name to be Procured	: Supply, Installation, Commissioning of 1000 kg per day Pre-fabricated Biogas Plant for Organic Waste at Paradip, Odisha
Type (Equipment/Software/Furniture/Others)	: Equipment
Brief Specifications of the Item(s) (Attach Additional Sheet if necessary)	: As Per Annexure 'L'
Quantity	: 01
Any other details/requirement	: Nil
Warranty Period (in months)	: 36 Months
Delivery Schedule expected after the release of a Purchase order (in Weeks)	: 20 Weeks
Performance Security to be given by Successful Bidder after release of Purchase Order (in Rupees)	: 3% of Purchase Order

SECTION 4 - PRICE BID

[To be used by the bidder for submission of the bid]

Tender Inviting Authority:

Name of Work/Goods/Services:

Contract No:

Name of the Bidder/ Bidding Firm / Company :

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

Number	TEXT #	NUMBER #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER #	TEXT #
Sr. No.	Item Description	Quantity	BASIC RATE in Figures To be entered by the Bidder in Rs. P	COST	GST rate in %	GST Amount	TOTAL AMOUNT with Taxes Rs. P	TOTAL AMOUNT In Words
1								
2								
Total in Figures								
Quoted Rate in Words								

SECTION 5: CONTRACT FORM

[To be provided by the bidder in the business letterhead]

1. (Name of the Supplier's Firm) hereby abide to deliver by the delivery schedule mentioned in section 3 tender document for supply of the items if the purchase order is awarded.
2. The item will be supplied conforming to the specifications stated in the tender document without any defects and deviations.
3. Warranty will be given for the period mentioned in the tender document and service will be rendered to the satisfaction of NITK, Surathkal during this period.

Signature of the Bidder : _____

Name and Designation: _____

Business Address : _____

Place:

Date:

Seal of the Bidder's Firm

Compliance Statement of Specifications

Annexure –‘A’

Sl.No.	Name of specification/Part/Accessories of tender inquiry	Specifications of the quoted Model / Item	Compliance Whether YES or NO	Deviations if any to be indicated in unambiguous terms

(Add more rows if required)

Signature and Seal of the Bidder

Previous Supply Orders Executed

Name of the firm: _____

Order placed by [Full address of the purchaser]	Order No. and Date	Order Value	Specified Delivery Date	Actual Delivery Date	Remarks indicating reasons for late delivery, if any and justification for the price difference of their supply order and those quoted to us	Has the equipment been installed satisfactorily?	Contact person along with telephone, mobile number, fax, and E-mail address (other Universities, Institutes, and Government Department/Undertakings/Public sectors)

(Add more rows if required)

Signature and Seal of the Bidder

FORMAT OF DECLARATION
(To be submitted on Letterhead)

I/We Mr./Ms. _____, S/o/ of Mr. _____ aged about _____ years, resident of _____ ,
working as -----(designation) for ----- (name and address of the bidding agency).

I solemnly affirm and the state as under:

1. That I am working as ----- /proprietor of the ----- (name of the firm) and authorized to sign this declaration.
2. That the firm M/s---- (complete address of the firm) has not abandoned or suspended any contract work of any organization/ department so far/ during the previous five financial years.
3. That the firm M/s---- (complete address of the firm) has not been blacklisted/ debarred for competing in tenders by any organization/ department so far/ during the previous five financial years.
4. I solemnly confirm that the facts stated above are true and nothing has been concealed.

Seal and Signature of Bidder

INTEGRITY PACT AGREEMENT

(To be signed by the bidder/same signatory authorized to sign the relevant contact)

This Integrity Agreement is made at Surathkal on this day of20

BETWEEN

National Institute of Technology Karnataka, Surathkal, an Institute of National Importance (under NIT Act -2007) represented through The Registrar, NITK, Surathkal (hereinafter referred as the ‘**Buyer**, which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

.....
(Name and Address of the Individual/Firm/Company)

Through (Hereinafter referred to as the “Bidder/Contractor” and which expression shall unless repugnant to the meaning or context hereof include its succession and permitted assigns)

Preamble

WHEREAS **NITK Surathkal has** floated the Tender (Hereinafter referred to as “Tender/Bid”) and intends to award, underlaid down organizational procedure, contract for “Equipment”

[Hereinafter referred to as the “**Contract**”).

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as “**Integrity Pact**” or “**Pact**”), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this witness as under:

Seal and Signature of the bidder

Registrar, for NITK Surathkal

Article 1: Commitment of NITK Surathkal

- i. **NITK Surathkal** commits to take all measures necessary to prevent corruption and to observe the following principles:
 - (a) No employee of NITK Surathkal, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) NITK Surathkal will, during the Tender process, treat all Bidder(s) with equity and reason. NITK Surathkal will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.
 - (c) NITK Surathkal shall endeavor to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- ii. If NITK Surathkal obtains information on the conduct of any of its employees which is a criminal offense under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, NITK Surathkal will inform the Chief Vigilance Officer and in addition, can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/ Contractor(s)

- 1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adheres to the highest ethical standers, and report to the Government / Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and through the negotiation or award of a contract.
- 2) The Bidder(s)/Contractor(s) commit himself to take measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contact execution:
 - a. The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contractor to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contractor.

Seal and Signature of the bidder

Registrar, for NITK Surathkal

- b. The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into an undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
 - c. The Bidder(s)/Contractor(s) will not commit any offense under the relevant IPC/PC Act. Further, the Bidder(s)/Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as
 - d. part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - e. The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India if any. Similarly, Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives if any. Either the Indian agent on behalf of the foreign principals or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participates in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
 - f. The Bidder(s)/Contractor(s) will when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers, or any other intermediaries in connection with the award of the Contract.
- iii. The Bidder(s)/Contractor(s) will not instigate third persons to commit offenses outlined above or be an accessory to such offenses.
 - iv. The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice **means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce a public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to a justified interest of others and/or to influence the procurement process to the detriment of the Government interests.**
 - v. The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive practices (means the act of obtaining something, compelling action or influencing a decision through intimidation, there or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/her reputation or property to influence their participation in the tendering process).

Seal and Signature of the bidder

Registrar, for NITK Surathkal

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to NITK Surathkal under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidders/Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

- 1) If the Bidder(s)/Contractor(s), either before awarded or during the execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving a 14-day notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determinate the Contract - if already executed or exclude the Bidders/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. **Such exclusion may be forever or for a limited period as decided by NITK Surathkal.**
- 2) **Forfeiture of EMD/Performance Guarantee/Security Deposit:** If NITK Surathkal has disqualified the Bidder(s) from the tender process before the award of the Contract or terminate/determinate the Contractor has accrued the right to terminate/determinate the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to NITK Surathkal, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Security of the Bidders/Contractor.
- 3) **Criminal Liability:** If NITK Surathkal obtains knowledge of the conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of Indian Penal code (IPC)/Prevention of Corruption Act, or if the Principal/Owner has substantive suspicion in this regard, NITK Surathkal will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country conforming to the anti-corruption approach or with Central Government or State Government or any other Central/State Public Enterprises in India that could justify his exclusion from the Tender process.
- 2) If the Bidder makes an incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/Owner.
- 3) If the Bidder/Contractor can prove that he has resorted/recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its discretion, revoke the exclusion prematurely.

Seal and Signature of the bidder

Registrar, for NITK Surathkal

Article: 5 Equal Treatment of all Bidder/Contractors/Subcontractors

- 1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidders/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Sub-contractors/sub-vendors.
- 2) The Principal/Owner will enter into pacts on identical terms as this one with all Bidders and Contractors.
- 3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed pact between the Principal/Owner and the bidder, along with the Tender, or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6: Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12months after the completion of work under the contractor or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of these pacts as specified above, under it is discharged/determined by the Competent Authority of NITK, Surathkal.

Article 7: Other Provisions

- 1) This Pact is subject to Indian Law, place of performance and jurisdiction is **Mangaluru**, the Headquarters of NITK Surathkal, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partners holding power of attorney signed by all partners and consortium members. In the case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement with their original intentions.
- 5) It is agreed on term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action was taken by the Owner/Principal in accordance with this **Integrity Agreement/Pact or interpretation thereof shall not be subject to arbitration.**

Seal and Signature of the bidder

Registrar, for NITK Surathkal

Format for Bank Account details of the bidder

Name of the account holder (the bidder)	
Complete address	
Contact number	
Email address	

Bank Account details:

Bank name	
Branch name	
MICR number	
Account type	
Account Number	
Please re-type the Account number again	
IFSC code of the Bank	

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the Institute responsible for this.

I have read the option invitation letter and agree to discharge the responsibility expected of me as a participant under the scheme.

Seal and signature of the bidder.

Certification from the banker:

Certified that the particulars furnished above are correct as per our records.

Seal and signature of the authorized officer of the bank.

**FORMAT FOR PERFORMANCE GUARANTEE BOND
(To be typed on Non-judicial stamp paper of the value of Indian Rupees of Five Hundred)**

To,
Director,
National Institute of Technology Karnataka,
Srinivasnagar P.O., Surathkal
Mangaluru – 575025

Whereas..... (name and address of the contractor) (hereinafter called “the contractor”) has undertaken, in pursuance of contract no date..... to supply (description of goods and Works/ Services) (hereinafter called “the contract”).

And Whereas you have stipulated it in the said contract that the contractor shall furnish you with a bank guarantee by a Commercial bank for the sum specified therein as security for compliance with its obligations as per the contract;

And Whereas we have agreed to give the contractor such a bank guarantee.

Now Therefore we hereby affirm that we are guarantors and responsible to you, on behalf of the contractor, up to a total of(amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the contractor to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the sail debt from the contractor before presenting us with demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed thereunder or of any of the contract documents which may be made between you and the contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall be valid until theday of20.....

Our.....branch at.....*(Name & Address of the*(branch) is liable to pay the guaranteed amount depending on the filing of a claim and any part thereof under this Bank Guarantee only and only if you serve upon us at our* branch a written claim or demand and received by us at our* branch on or before Dt..... otherwise, the bank shall be discharged of all liabilities under this guarantee after that.

(Signature of the authorized officer of the Bank)

.....
.....
Name and designation of the officer
.....

Seal, name & address of the Bank and address of Branch

*Preferably at the headquarters of the authority competent to sanction the expenditure for the procurement of goods or at the concerned district headquarters or the state headquarters.

(Compliance to be submitted in the bidder's letterhead)
(as applicable)

Sub: Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017

Item Name:	
Enquiry No.:	

We M/s. _____ (name of the bidder company) have read the clauses pertaining to the Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country that shares a land border with India.

We hereby certify that **we are not from such a country** and eligible to be considered for this tender.

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead to commercial rejection of their bids by NITK)

For and behalf of _____ (Name of the bidder)

(Signature, date & seal of an authorized representative of the bidder)

**(Compliance to be submitted in the bidder's letterhead)
(as applicable)**

Sub: Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017

Item Name:	
Enquiry No.:	

We M/s. _____ (name of the bidder company) have read the clauses pertaining to the Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country which shares a land border with India.

We are from such a country which shares a land border with India & have been registered with the Competent Authority as specified in the above-said order. We hereby certify that we fulfill all requirements in this regard and are eligible to be considered.

Evidence of valid registration by the Competent Authority is attached.

(Note: Non-compliance of above said Gol Order and its subsequent amendment, (if any), by any bidder(s) shall lead to commercial rejection of their bids by NITK)

For and behalf of _____ (Name of the bidder)

(Signature, date & seal of an authorized representative of the bidder)

Self-Certification on the letterhead of the company

In line with Government Public Procurement Order No. P-45021/2/2017-BE-II dt. 15.06.2017, P-45021/2/2017-PP (BE-II) dated 28.05.2018, P-45021/2/2017-PP (BE-II) dated 29.05.2019 and P-45021/2/2017-PP (BE-II) dated 16.09.2020, we hereby certify that

.....
(Supplier name) are local supplier meeting requirement of minimum local content % defined in as above orders for the material against Enquiry / Tender No

.....
.....
.....
Details of the location at which local value addition will be made are as follows:

.....
.....
.....
We also understand false declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permitted under law.

Date:
Place:

Signature:
Name and Designation:
Mobile no:
Office Telephone No: Email ID:
Office Seal:

FORMAT FOR EARNEST MONEY DEPOSIT / BID BOND

(To be typed on Non-judicial stamp paper of value Indian Rupees Five Hundred)

(TO BE ESTABLISHED THROUGH ANY OF THE NATIONAL BANKS (WHETHER SITUATED AT MANGALURU OR OUTSTATION) WITH A CLAUSE TO ENFORCE THE SAME ON THEIR LOCAL BRANCH AT MANGALURU OR ANY SCHEDULED BANK (OTHER THAN NATIONALISED BANK) SITUATED AT MANGALURU. BONDS ISSUED BY COOPERATIVE BANKS ARE NOT ACCEPTED)

LETTER OF GUARANTEE

To
Director,
National Institute of Technology Karnataka,
Srinivasnagar P.O., Surathkal
Mangaluru – 575025

IN ACCORDANCE WITH YOUR TENDER for the supply of, M/s..... (hereinafter called the "Bidder") having its Registered Office at, wish to participate in the said bid for the supply.....as an irrevocable Bank Guarantee against Earnest Money Deposit for an amount of Rs. (Rupees.....) valid up to **(180 days from the date of issue of Bank Guarantee)**, is required to be submitted by the bidder as a condition precedent for participating in the said bid, which amount is liable to be forfeited by the Purchaser on (1) the withdrawal or revision of the offer by the bidder within the validity period, (2) Non acceptance of the Letter of Intent/Purchase order by the Bidder when issued within the validity period, (3) failure to execute the contract as per contractual terms and condition within the contractual delivery period and (4) on the happening of any contingencies mentioned in the bid documents.

During the validity of this Bank Guarantee:

We,(Bank name) having the registered office at.....guarantee and undertake to pay immediately on first demand by NITK Surathkal, an amount of Rs..... (Rupees.) without any reservation, protest, demur and recourse. Any such demand made by theNITK Surathkal shall be conclusive and recourse. Any such demand made by the purchaser shall be binding on the Bank irrespective of any dispute or difference raised by the Bidder.

The Guarantee shall be irrevocable and shall remain valid up to.....(180 days from the date of issue of Bank Guarantee) If any further extension is required, the same shall be extended to such required period on receiving instruction from the Bidder, on whose behalf the is Guarantee is issued.

Notwithstanding anything contained herein:

- * Our liability under this Bank Guarantee shall not exceed Rs..... (Rupees.....).
- * This Bank Guarantee shall be valid up to.....(date).
- * We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee Only and only if you serve upon us a written claim on or before(date).

This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office atsituated at(Address of local branch).

Yours truly,

Signature and seal of the guarantor: Name of Bank:

Address:

Date:

Instruction to Bank: Bank should note that on expiry of Bond Period, the Original Bond will not be returned to the Bank. The bank is requested to take appropriate necessary action on or after the expiry of the bond period

Checklist for BIDDERS

BIDDERS are to indicate whether the following documents are uploaded by striking out the non-relevant option and the relevant technical bid documents should be in order.

Sl. No.	Documents	Content	Document Attached
1	Technical Bid	A signed copy of the tender document should be uploaded	(Yes /No) Pg. No.
2		Self-Attested copy of GST & PAN Number	(Yes /No) Pg. No.
3		License certificate for manufacture /supply of the item &Factory license. Registration with EPF and ESI	(Yes /No) Pg. No.
4		Undertaking that the successful BIDDER agrees to give a 3% Performance Security.	(Yes /No) Pg. No.
5		Catalogue of the Product with detailed product specifications.	(Yes /No) Pg. No.
6		Copy of the Balance Sheet	(Yes /No) Pg. No.
7		List of Owner/partners of the firm and their contact numbers (Bidder Information)	(Yes /No) Pg. No.
8		The contract form is given in section 5	(Yes /No) Pg. No.
9		Format of compliance statement of specification as per Annexure-‘A’	(Yes /No) Pg. No.
10		Previous Supply Order as per Annexure-‘B’	(Yes /No) Pg. No.
11		Declaration of abandoned or suspended any awarded service & Blacklist Certificate. Annexure ‘C’	(Yes /No) Pg. No.
12		Integrity Pact. Annexure ‘D’	(Yes /No) Pg. No.
13		Bank details of the bidder. Annexure ‘E’	(Yes /No) Pg. No.
14		EMD FORMAT Annexure ‘J’	(Yes /No) Pg. No.
15		Document as per specification (if any)	(Yes /No) Pg. No.
16		Annexure –‘G’	(Yes /No) Pg. No.
17		Annexure –‘H’	(Yes /No) Pg. No.

18		Annexure -'I'	(Yes /No) Pg. No.
1	Financial- Bid	Price bid	(Yes /No)

Seal and Signature of the bidder

Detailed Technical Specifications

**Specifications for Supply, Installation, Commissioning of 1000 kg per day
Pre-fabricated Biogas Plant for Organic Waste at Paradip, Odisha**

Background

Biogas technology using organic waste is being promoted as an important option to meet the growing energy demand of rural areas in developing countries. It provides a clean and efficient fuel for several applications like cooking, lighting, water pumping and other power applications for a small labor input. An idea behind the biogas plant which is to be installed in the Paradip municipality is to convert organic waste available to energy. This project is a viable solution for the management of waste generated from the municipality household and even food waste generated from canteens. This proposed project mainly focuses on waste reduction and upgrading the current environmental scenario of Paradip municipality.

Paradip is a growing city in the Indian state of Odisha, with a population of over 70,000 people. As with any growing urban area, the city generates a significant amount of waste on a daily basis. This waste is a mixture of household waste, commercial waste, and industrial waste. Of the total waste generated, it is estimated that around 45 - 55 % is biodegradable. This means that it can be broken down naturally by microorganisms over time. Biodegradable waste includes food waste, yard waste, and other organic materials. The remaining 40 % of waste is typically non-biodegradable, such as plastics, metals, and other materials that do not decompose easily. Based on the statistics provided by the Paradip Municipality, it is estimated that the city produces approximately 5 tons of biodegradable waste per day. If a one-ton biogas plant were to be sustained in Paradip, it could potentially process approx. 800 kg of this biodegradable waste per day, producing biogas and organic fertilizer. This has the potential to significantly reduce the amount of waste going to landfills, while also generating renewable energy and supporting local agriculture.

Project Scope and Objectives:

- **Waste Management/ Environmental Impact:** The biogas plant will process up to 1,000 kg of biodegradable waste per day, converting it into energy and fertilizer, thereby reducing landfill waste, lowering greenhouse gas emissions, and contributing to a cleaner urban environment in Paradip.
- **Nutrient Recycling:** The plant will produce nutrient-rich slurry, which will be converted into organic fertilizer and sold to local farmers, supporting agriculture and generating revenue for plant maintenance.
- **Energy Production:** It will generate biogas, producing approximately 30-50 kg/day of biogas equivalent, which will be compressed and supplied to local Ahaar Kendras, thereby reducing reliance on LPG.

Technical Specification of the Biogas Plant

Biogas Plant Systems should comprise the following essential components:

1. Remote Monitoring System (RMS):

The Remote Monitoring Suite allows customers to analyze various performance parameters such as temperature, pressures, gas production, and timings. This is achieved through the utilization of installed sensors, PLC-based control systems, a GSM module, and specialized algorithms.

2. Automatic Bio-Health Measurement System:

The Automatic Biological Health Measurement System conducts daily checks on digested slurry samples using a Bio-Health Measurement System. This system monitors multiple factors in the slurry to assess the health of the plant. The absence of biological health monitoring has led to the dysfunction of many biogas plants in India. While some solutions only check pH, which provides a lagging indicator, our system aims to prevent system failures.

3. Gas Measurement and Management System:

The Gas Measurement and Management System is designed to operate without human intervention and should be fully automated. Gas generated from the Bio-digester undergoes scrubbing to remove H₂S and moisture, preventing corrosion and ensuring smooth gas flow through downstream components. A patented twin balloon system is utilized for gas measurement, providing a cost-effective method that maintains efficiency over time compared to a flow meter. If the process vessel reaches its capacity threshold, excess gas is flared off through a flaring unit.

4. Daily Operations Support for Plant Operations:

Our biogas plant systems provide daily support for plant operations. The operations team has access to data from the Remote Monitoring System and Automatic Bio-health Checker through the cloud. This data serves as the basis for daily recommendations on feeding for the on-site operator(s). Any feedback can be quickly conveyed back to the operations team for prompt response and resolution.

5. Performance Dashboards and Monthly Gas Reports:

Our systems include a personalized dashboard equipped with constantly updated data, allowing clients to review the plant's performance in real-time. Additionally, monthly gas reports are shared with clients, providing information on the following key aspects:

- Waste processed
- Gas produced
- Gas consumed
- Gas flared (excess gas that is flared off)
- Amount of LPG replaced

Sub-system specifications:

Sub-systems	Specifications
Input system	Shredder customized for food waste at 400-600 kg/hour. Hydrolyser / Pre-digester of 6 m ³ capacity. Waste sludge pump for feeding the hydrolysed waste into the digester.
Reactor system	MS Digester (with FRP coating) with heating system to enable faster digestion and minimal area requirement. Volume: 32 m ³ . Innovative heating design to enable micro-mixing for higher stability.
Gas Management System	Scrubbers (H ₂ S and moisture). Automated routing to electronic flaring unit in case of non- utilization of biogas Electronically controlled temporary storage system (Additional accessories) Reliable and strong gas storage vessel for compressed gas. (Additional accessories)
	Sub-system: Twin Balloon System + Compressor is 6 cfm + Gas storage vessel Capacity ~ 12 m ³ . Specially designed biogas burners 2 no.s (4 inch or 8 inch)
Remote Monitoring & Automation System	Industrial control system for plant operations. 24x7 Remote monitoring systems for safety and performance of electronically controlled systems.
Bio-Health Management System	Automated Apparatus to keep track of biological health of the system.

Overall Product description:

Parameter	Description
Feed	Organic Waste
Plant Capacity	1000 kg per day
Waste Details-approx.	Bio-degradable Municipal Solid Waste
Area Offered	Up to 800 sq. feet.
Biogas Production	50 kg of Biogas/day

Bill of Quantities of the Biogas Plant:

1. Input System:

a. Shredding, Mixing and Feeding

Shredder	Crusher with around 20 cutting blades with motor. Capacity: 400-600 kg/hr
Hopper	Hopper with lid, Volume 30 litres
Sludge Mixer	SS 304 material with holding volume of 0.4 m ³
Feeding Pump	Submersible cutter pump with 2 hp motor
Aeration Pump	Capacity of around 0.25-0.5 m ³ air per hour per ton of waste
Mechanical Slurry Recirculating Arrangement	Slurry pump, Piping system of PVC, HDPE, or stainless steel, Nozzles or sprayers, mixing by agitators, paddles, or mechanical mixers and control system

2. Input System:

b. Pre-digester

Hydrolysis Tank	SS 304 material with active volume of 6 m ³
Waste Sludge Pump	MOC CI, Min 500 lph progressive cavity pump with 2 hp motor - 3 Phase -960 rpm.

3. Anaerobic Digester System:

a. Digester

Inner Digester tank	Volume: 32 m ³ , Orientation vertical, Thickness of Tank: 6 mm, Temperature Controlled at 39 (+/- 2) °C, Operating Pressure: 5 kPa
Ring and Stand	Material and make MS ISMB 200
Gas Mixing System	Diffuser Head / Header arrangement, Solenoids etc. (inbuilt to digester)
Insulation and Anti-Corrosion	FRP coating with thickness 450 GSM, Material chopped strand mat 450 GSM, Fibre glass wool with aluminium cladding on the top
Painting	2 coat red- oxide with finish painting of synthetic enamel
Ladder and railings	MS
Mechanical Safety Valve	Pressure Release Valve Type: Adjustable Pressure Relief Threshold: 0.1 bar(g) Safety valve, make SS 304, vertical type Flame arrestor added separately
Digestate Collection Tank	4000 litre underground tank
Other Required Accessories in this regard.	

4. Anaerobic Digester System:

b. Heating Arrangement

Circulating Coil	Material SS304/316, Total length: 50 m, Location: Inside Digester
Circulating Pump	Voltage 230 V AC, Maximum flow rate 1100 lph, Maximum head 10m, maximum pressure 1.0 bar, Inlet/Outlet dia. 12.5 mm
Geyser	Volume: 35 L (cumulative), Power requirement upto 2 kW (cumulative), Voltage/frequency 220-230 V/50 Hz, Temperature range 35-75 °C
Temperature control	For Pump Control: TC513A For Data Monitoring: PID500 TC with PT100 Sensor Geyser Control: TC513A Contactor for booster pump: Schneider 3 pole 9 A Contactor for Geysers: Schneider 3 pole 18 A

5. Standard Gas Management System:

a. Gas Scrubbing

H ₂ S Scrubber	Material SS 304, Powder coated outer body paint Scrubbing mechanism- Chemical Oxidation of H ₂ S by Fe Filling Material: Iron filings
Moisture Scrubber	Material: SS 304, Powder coated outer body paint Scrubbing mechanism- moisture condensation

6. Standard Gas Management System:

b. Gas Flaring

Flaring Point	Flaring point with spark ignition unit
Additional Safety	Flame arrestor

7. Automation System:

Instrumentation and Control System

Electrical Distribution and Control Panel	Sufficient power capacity for motors, pumps, heaters, lighting, and other electrical equipment within the plant. Circuit breakers and protection. Control system integration including communication interfaces, such as Modbus or Ethernet, to connect with sensors, actuators, and other control devices. HMI (Human-Machine Interface). Electrical cabling and wiring. Safety Features.
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Inline Gas Control Valves	12 V DC valve 3/2 valve Qty 2 nos (balloon Change over) 12V DC SS Valve 2/2 valve, Nos: 3 (2 for flaring in parallel, 1 for Digester Automatic Pressure Release), Working current <1A, Working pressure: 1MPa, Material Steel 304
Pressure Sensor: PVS	Baumer, CTX 323B79 -TRANSMITTER Pressure Transmitter, Nos: 1 (In Process Vessel) Range: -1 to 9bar(g), Working Voltage: 11 – 30VDC Ratio-metric, G1/4"A
Pressure Sensor: BPS	Freescall Semiconductor, MPX5100GP Nos: 2 (In Automation Panel Box, Input from balloons) Pressure Range 0-1 bar(g), Accuracy <=0.05% of span conforms to EN 61298-1 Protection IP 65
Pressure Sensor: DPS	Freescall Semiconductor, MPX5100GP Nos: 1 (In Automation Panel Box, Input from digester) Pressure Range 0-1 bar(g) Accuracy <=0.05% of span conforms to EN 61298-1 Protection IP 65
Central Logic Controller	DELTA PLC
RMS	Microcontroller based systems for Remote Monitoring.
SMPS Unit	24 V, 12 V and 5 V SMPS 24V 60W For PLC 12V 60W For VALVES 12V 30W For RMS 5V 15W For Balloon Sensors
Display	LCD Screen
RMS microcontroller system with accessories	Communication module with GPRS 2G Capability
Flaring circuit with transformer	Input voltage 230 V AC. Output sparking VA rating 60VA Max Intake capacity 5-200 m ³ /day
Hooter	Input Voltage 230V AC

8. Health Management:

Automatic Biological Health Management

pH measurement module	Probe sensor, Filling solution, pH meter
Drop sensing module	Proprietary system
Master control unit	8 bit microcontroller board and 2G GPRS modem
Stirring set	12 V high torque, low speed motor with beaker holder
Acid holder	MS make bottle holder
Panel box	Bio-health checker for housing health monitoring
Pump	Peristaltic pump 12V/500Ma SRPM

9. Slurry Management:

Slurry Pump	3 hp motor 1 phase
Slurry Dewatering Machine	Stainless Steel, Motor Power: 7.5 hp, Voltage: 240 V

10. Civil and Construction Works:

Design and Construction	Design the foundations, structures, and containment systems based on the specific requirements of the biogas plant components and local regulations
	Ensure that the design provides structural stability, durability, and compatibility with the waste material.
	Consider factors such as load-bearing capacity, seismic considerations, and protection against environmental impacts.
Foundation	Construct a stable foundation to support the weight of the biogas plant components
	Select appropriate foundation types, such as concrete pads or piles, based on soil conditions and structural requirements. RCC platform/cradle is preferred for the biogas plant
Structures	Build the digester structure using suitable materials that
	are resistant to chemical corrosion and provide proper insulation Construct gas storage units and other necessary structures according to design specifications
	Ensure proper ventilation and access for maintenance and inspection
	Brickwork around the shed perimeter at 1 meter height. Bottom covered portion should be with brick to match the roof style
Roofing	Construct roof covering the entire biogas plant and slurry management unit. Shed structure should be having “ Faux Tile ” sheet roof.
Painting Works	Painting for both indoor and outdoor surfaces, including walls, ceilings, floors, equipment, and pipelines.
Containment and Safety Measures	Incorporate appropriate containment systems to prevent leaks and spills
	Install safety features, such as bund walls, emergency showers, eyewash stations, and fire suppression systems, as per safety regulations
Utilities and Infrastructure	Provide utilities such as water supply, electrical connections, and drainage systems, based on the specific requirements of the biogas plant
	Ensure compliance with local codes and standards for utility connections.

11. Transportation and unloading (If required):

Transportation	All costs related to transportation, including loading, transit, insurance, and unloading, shall be borne by the supplier and must be included in the bid price.
Unloading	Suppliers must ensure that appropriate vehicles and unloading equipment (e.g., cranes, forklifts) are used to prevent damage to the equipment during delivery.

The supplier shall be responsible for the safe packaging, transportation, and unloading of all equipment and prefabricated components of the biogas plant to the specified site at Paradip.

12. Supply, Installation, Commissioning of 1000 kg per day Pre-fabricated Biogas Plant for Organic Waste:

Site Preparation	Clear the designated area of any obstacles or debris
	Level the ground and ensure proper drainage
	Ensure access for equipment delivery and maintenance.
Installation	Installation of the biogas plant components, including the digester, gas storage system, feeding mechanism, heating system (if applicable), safety features, and control system.
	Properly connect all components, including piping, electrical wiring, and control systems
	Adhere to safety protocols and regulations during installation
Testing and Commissioning	Perform initial tests to ensure the integrity and functionality of all biogas plant components before commissioning
	Conduct leak tests to ensure gas-tight connections and detect any potential gas leaks.
	Test the functionality of safety features, such as pressure relief valves, emergency shutdown systems, and gas detectors.
	Verify the performance of the feeding mechanism, mixing system, heating system (if applicable), gas storage system, control system, sensors, and monitoring equipment.
	Calibrate instruments and sensors for accurate readings.
	Verify the gas production and quality, as well as the overall efficiency of the biogas plant.
Commissioning and Handover	Once all necessary tests and inspections are completed, commission the biogas plant for regular operation
	Provide training sessions to the operators on the safe and efficient operation of the biogas plant.
	Hand over all relevant documentation, including operation manuals, maintenance schedules, safety guidelines, and any required permits or certifications.

Additional Accessories Required:

13. Gas management System:

a. Twin Balloon Compression

Temporary Balloons	Capacity: 1 m ³ . Nos: 4. MOC; Neoprene
Balloon Cage	MS mesh enclosure for balloons
Gas Compressor	Power: 2.0 hp, Lubricated Type, Flow Rate: 13 m ³ /hr, Output Pressure: upto 8 bar (atm) Auto cut-off: 6.5 bar (g), Pressure Gauge: Diaphragm Type Visual Dial Condensate Drain: Manual

14. Gas management System:

b. Process Vessel - High Pressure Storage

Gas Storage Vessel	Physical Volume: 12 m ³ , Active Storage 60 m ³ . at 5 bar(g), Material: MS Hot Rolled Thickness: 5 mm
FRP coating	FRP coating with thickness 450 GSM
Painting	Corrosion Resistant Paint
Ladder	As required
Pressure Gauge	Diaphragm sealed pressure gauge
Mechanical Safety Valve	Pressure Release Valve Type: Adjustable Pressure Relief Threshold: 5.05 bar(g) Non returning valve, make SS 304, horizontal type

15. Gas management System:

c. CO₂ Gas Scrubbing

CO ₂ Scrubber	Water Scrubber: Packed Bed Solvent: Pressurized water Efficiency: 95%
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16. Biogas Utilization:

(a) Biogas Burners and Cylinders

Biogas Burners	To replace equivalent LPG burners in open cooking
Cylinders to store and utilize biogas	Number:4, Capacity: 75 Liters for biogas at 200-250 bar pressure Valves, fittings etc. to transfer biogas to cylinders.

17. Biogas Utilization:

(b) PESO Licence

PESO License	For the transport of biogas to 5 km as it contains methane, a flammable gas.
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18. Compressor:

Inlet Pressure (Suction Pressure)	Atmospheric
Discharge Pressure	250 bar
Flow	5 Nm ³ /h
No. of Cylinders	2

Include any other required equipment for the completion of the biogas plant.

Specification Summary for Biogas Plant:

Plant Feed and Capacity	1000 kg per day segregated food waste
Biogas productivity	50 kg per ton of organic waste input
Plant Area	Maximum 800 square feet
Shredder	Capacity – 500 kg per hour. Should be able to shred bones etc. in non-vegetarian food. EN31 blades with mixing hopper Power 3 HP Voltage 415 V, RPM 1500. Type- 3 phase Squirrel Cage Induction Motor, Frequency 50 Hz
Mixer	MS mixer fitted with submersible cutter pump
Pre-digester	SS 304 pre-digester sized for 5 days of feed capacity
Main Anaerobic Digester	MS with FRP coating on inside, Insulation and Aluminium cladding on the outside. Equipped with heating system.
Heating System for the Main digester	Automatic heating system consisting of heater, circulating pump, heating coil and electronics system/PID controller to automatically maintain the temperature in mesophilic range (38 – 42°C)
Scrubber H ₂ S	SS 304 construction, to scrub H ₂ S from the biogas
Scrubber Moisture	SS 304 construction, to separate moisture from biogas
Scrubber CO ₂ (Additional accessories)	Packed bed water scrubber with 95 % efficiency
Gas Management and Measurement	Volumetric measurement system along with automatic pressurization
Biogas Process Vessel (Additional accessories)	Process vessel, MS with FRP internal coating, to store and use scrubbed biogas, tested for use at 5 bar
Automatic Flaring System	For flaring excess gas. Biogas should not be directly released to air. Flaring should be automatic with mechanism for automatic ignition of gas and standard safety mechanisms

Electronics and Automation System	Microcontroller based system for automated operation of the system
Remote Monitoring System with online Dashboard	Plant operational parameters should be remotely monitored 24x7 and the parameters should be made available for viewing on an online dashboard. Hourly data should be recorded. Monthly power generation report should be made available on the dashboard. Data should be transferred through 3G / GPRS / SMS. Parameters to be made available on online dashboard - Digester Temperature, Pressure, Total Gas Production, Flow Rate, Volume of gas flared
Bio-process Monitoring and Control	The anaerobic digestion process should be monitored using leading indicators other than/in addition to pH through a remotely monitored device
Biogas Burners (Additional accessories)	To replace equivalent LPG burners in open cooking
Biogas Cylinders (Additional accessories)	To store and utilize biogas
PESO License (Additional accessories)	For the transport of biogas to 5 km as it contains explosive substance (methane)

Warranty Period: 3 years

The warranty is expected to provide coverage for any manufacturing defects that may arise in essential components of the biogas plant system. These components include the Pre-digester (Hydrolyser), mixer, Main Digester, Scrubbers, Process Vessel, and other relevant items. It is crucial for the warranty to extend for a period of two years, ensuring ample time to identify and address any potential defects that may occur during this time.

Furthermore, the warranty should encompass additional components such as pumps, motors, temporary storage balloon, flame arrestor, sensors, electronic components, and other related parts. These components play a vital role in the overall functioning of the system, and it is important for them to be covered under the warranty as well.

A comprehensive warranty that covers manufacturing defects in both the essential components and the supplementary parts would be an assurance in the quality and reliability of the entire biogas plant system. It would provide the necessary support and assistance in case any issues arise during the warranty period.

Service Suit:

The supplier should provide a service suit of at least 3 years to check the proper working of the plant. This includes Bio-health monitoring and support services. Effective plant maintenance involves monitoring critical health parameters, electro-mechanical systems, safety systems, and the transfer of vital data to ensure optimal operational conditions. The provided services should include:

- Round-the-clock bio-maintenance of the reactor through the implementation of a Remote Monitoring System (RMS).
- Continuous real-time updates of the RMS data, encompassing reactor performance and alarms, available 24/7.
- Unlimited access to the RMS dashboard, allowing comprehensive data review.

- Daily communication via phone with the designated operator, providing instructions on the required feed additions to the system.
- Covering expenses for all chemical and bio-chemical consumables (excluding food waste) to maintain system health.
- Bearing the costs associated with data exchange and cloud server maintenance.
- Conducting preventive visits and corrective visits to the client location, when necessary.
- Providing instructions for the addition of chemicals and bio-chemical additives as needed.
- Delivering a monthly report to the customer, detailing the operation specifics.
- Presenting a maintenance report during preventive maintenance sessions.

Brief Working Procedure:

The working procedure of a one-ton organic waste-based biogas plant typically involves several steps:

Waste Collection and Pre-Treatment:

- Organic waste, such as agricultural residues, food waste, or animal manure, is collected and transported to the biogas plant.
- The waste is pre-treated, which may include shredding or grinding to increase surface area and promote efficient digestion.

Anaerobic Digestion:

- The pre-treated waste is fed into to hydrolyser and anaerobic digester, which is a sealed, oxygen-free environment.
- Microorganisms (anaerobic bacteria) break down the organic waste through a process called anaerobic digestion.
- This process produces biogas, which mainly consists of methane and carbon dioxide.

Biogas Collection and Storage:

- The biogas produced during anaerobic digestion is collected and stored.
- A gas collection system, such as pipes and a gas holder or storage tanks, is used to capture and store the biogas.

Gas Utilization:

- The stored biogas is utilized as a source of renewable energy.
- The biogas can be used for various purposes, such as generating electricity, producing heat, or as a fuel for cooking or heating applications.

Digestate Management:

- The residue left after anaerobic digestion, called digestate, is separated from the biogas.
- The digestate can be further processed to produce nutrient-rich organic fertilizers, which can be used in agriculture or horticulture.

Monitoring and Control:

- The biogas plant is equipped with monitoring and control systems to ensure optimal operation and safety.
- Parameters such as temperature, pH level, gas flow rate, and pressure are monitored and controlled to maintain efficient digestion and safe operation.

Completely automatic temperature controlled mesophilic range from 38 – 42 °C, the biogas management such as, measurement, compression and flaring (if required)) is advantageous. Hence, temperature sensors/transmitters, pressure sensors/transmitters, timers, flow measurement etc. integration is very important into a PLC based control system that sends alerts and takes action depending on the alert levels. The data is to be sent through the cloud to our operations team hourly.

****Disclaimer**** Bidders are advised to exercise caution and not respond to any unknown calls, emails, or embedded links requesting payment for participating in the tender or for any other purpose. Please note that NITK Surathkal never asks for any tender fee for participation in tenders or bids.