

Government of West Bengal
DIRECTORATE OF INDUSTRIAL TRAINING
Karigari Bhawan, B/7, Action Area-III (2nd Floor), New Town, Rajarhat, Kolkata-700160.
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Memo No. 5A-1/ 2022 / 5278

Date - 09 / 11 / 2022

Notice Inviting e-TENDER NO: DITWB/ HQ (CPC) / NIT-02 (e -Tender) /2022-23

Notice Inviting e-Tender No: DITWB/ HQ (CPC) / NIT-02 (e -Tender) /2022-23 of The Director of Industrial Training, Government of West Bengal invites e-tender for Supply, Testing, Installation & Commissioning of Machinery / Equipment / Instrument etc. for **DRONE TECHNICIAN** & **REMOTELY PILOTED AIRCRAFT OR DRONE PILOT** Courses at different existing Government Industrial Training Institutes throughout the State of West Bengal as per Tender Schedule Nos. A to Obelow.

(Submission of Bid through online)

Sl. No	Name of Work	Tender Schedule No	Earnest Money Deposit (Rs)	Cost of Tender Document (Rs)	Delivery Period	Source of fund
1	2	4	5	6	7	8
01	Supply, Testing , Installation & Commissioning of different Tools, Instruments, Equipment & Machineries of DRONE TECHNICIAN trade courses for various ITIs throughout the State of West Bengal.	A	Rs.40,000/-	Rs.4000/-	30 days	State Plan
02	Supply, Testing , Installation & Commissioning of different Tools, Instruments, Equipment & Machineries of REMOTELY PILOTED AIRCRAFT OR DRONE PILOT trade courses for various ITIs throughout the State of West Bengal.	B	Rs.40,000/-	Rs.4000/-	30 days	State Plan

1. To participate in the bid, an intending bidder is required to deposit the Tender fees and the Bid Security/Earnest Money Deposit of the amount specified in the NIT online alongwith proceeding to submit the bid through the Government of West Bengal e-procurement portal viz. <https://wbttenders.gov.in> with the help of his Digital Signature Certificate and using his login ID and password. The process of receipt and refund of Bid Security/Earnest Money Deposit shall be as per the procedure prescribed in the memorandum no. 3975-F(Y) dated 28.07.2016 of the Finance Department, Audit Branch, Govt. of West Bengal.

The bidder will select the tender to bid and initiate payment of pre-defined Tender Fees and Earnest Money Deposit for that tender online, by selecting from either of the following payment modes:

- (i) Net banking (any of the banks listed in the ICICI Bank payment gateway) in case of payment through ICICI Bank Payment Gateway;

2. FOR SPECIAL ATTENTION:-

All Tenderers / Bidders are to note that tenders containing any deviation from the terms and conditions and other requirement are liable to be rejected. The tender inviting authority reserves all rights to reject any or all the tenders without assigning any reason and split up the supply, if necessary and to accept the tender whole or part. Invitation of the tender shall under no circumstances create any legal right or otherwise in favour of

the tenderer in case the tender is closed, withdrawn or cancelled before issuance of purchase order nor shall the inviting authority be liable to explain the reason of such closure, withdrawal or cancellation of the tender. The inviting authority reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions. The Bidder may substitute alternative standards with Brand names/models and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the technical specifications. Purchase will, however, be made following the existing purchase policy of the Govt. of West Bengal and its amendment(s) or addendum made from time to time.

Special Note : Order quantity in respect of issuance of total Purchase Orders may vary of the tentative quantity as stated in the respective Tender Schedules attached with the Tender Document(NIT) on the basis of receipt of actual requirement of the Institute.

3. EARNEST MONEY/ TENDER DOCUMENT COST / BID SECURITY DEPOSIT:-

- i) The amount of Earnest money (EMD) as specified in above table against each NIT to be remitted in favour of the Director of Industrial Training, Technical Education, Training & Skill Development Department through ICICI Bank Payment Gateway as directed in F.D.'s Memo No: 3975-F(Y) dated 28.7.2016 (annexed with the NIT for kind perusal). The system of "Online receipt and refund of EMD of e-procurement through the State Govt. e-procurement portal" is to be followed mandatorily for deposit of EMD/ BID SECURITY related to e-procurement of the State Govt.
- ii) Also, refund of EMDs will be made as per procedures mentioned in F.D.'s Memo No: 3975-F(Y) dated 28.7.2016.
- iii) In the case of successful bidder, Earnest Money deposit will be released only after expiry of tender validity period / execution of purchase orders successfully and completely by the Bidder/satisfactory acceptance of the consignment by the consignees.
- iv) No interest on E.M.D. will be admissible.
- v) Exemption from payment of E.M.D and Tender Fees shall not be allowed.

4 . STANDARDISATION OF ITEMS/BIS CERTIFICATION/I.S.I. CERTIFICATE:-

- i. Items, for which BIS or other specifications have been mentioned in the Tender Schedules should be certified to be of the specified standard by the Bureau of Indian Standards (BIS), engraved in the body of the instruments and have the necessary valid licenses at the time of supply of the orders. In cases of non-availability of BIS certification and valid license, a certificate from a Government recognized test house should be attached specifically certifying that the supplied item conforms to the IS standard as specified. If the specified IS/BIS standard has been superseded by a more recent standard, then the more recent standard will be considered by the Tender Selection Committee/Tender Inviting Authority.
- ii. In items requiring mandatory certification under the relevant law, the manufacturer should have the necessary up to date licenses/certifications from BIS and/or other statutory authorities as applicable. Non-compliance, if detected on a later date, will lead to summary cancellation of the offer and penal provisions for fraudulent submission of tender will be invoked.
- iii. Calibration of equipment, wherever is necessary, must be done from a reputed test house at the expenses of the bidder and to be produced in original at the time of installation.
- iv. **"IMPORT LICENCE"** where it is applicable, duly attested photocopy of the Import License with up to date renewal from licensing authority must be submitted in case of Imported Items.
- v. OEM authorization Certificate (in the given format) in respect of each and every items must be uploaded with the NIT.

5. The Bid/Proposal is submitted in two parts. The two parts of the proposal are :-

(i) Part – 1 : Technical proposal

(ii) Part – 2 : Financial proposal

6. Both Technical Bid and Financial Bid are to be submitted concurrently duly digitally signed by the tenderer through the website <https://wbttenders.gov.in>. as per "Date & Time Schedule" as stated in sl. No. 9 of this NIT.

7. Tender documents may be downloaded from website and submission of Technical Bid and Financial Bid will be done as per Time Schedule stated in Sl. No. 10.

8. Eligibility and qualification requirements of Bidder :

The eligibility of a bidder will be judged on the basis of the document(s) in support of the minimum criteria as mentioned below :

8.1.(a) Offers for the items will be accepted only from the reputed manufacturers or their authorized distributors/authorized dealers/traders, having credentials of similar work **only in Govt. Educational institute/ Govt. Establishment** within last three financial years, for the tendered item, copy of which must be attached with the quotation and intending tenderer must have to produce the **clientele list he served during last 03 (three) financial years i.e. 2018-19, 2019-20 and 2020-21** with documentary evidence **as per Annexure-7** (Year-wise purchase order supported by delivery challan/ Bills of items, payment receipt supported by bank statement OR Payment Certificate issued by Competent authority).

(b) The bidder should have minimum **Rs.2.00 crores annual turnover** in each of last three financial year's i.e., 2018-19, 2019-20 and 2020-21. Bidders audited annual reports/ financial statement for each of the three financial year's i.e., 2018-19, 2019-20 and 2020-21 have to be attached along with a certificate from a practicing Chartered Accountant on his letter head confirming annual turnover **as per Annexure- 8** along with Copies of acknowledgement of FORM 3CB (for **Financial Years** 2018-19, 2019-20 and 2020-21)& FORM 3CD (**for Assessment Year**, 2019-20 and 2020-21 and 2021-22) **if applicable**, issued by Income Tax Deptt., Govt. of India, certified by **Chartered Accountant with valid membership registration No.**

N.B.: Estimated amount, Date of Completion / or ongoing Project and detail communicational address of client must be indicated in the Credential Certificate.[Non-statutory documents]

8.2. Financial Capability.

The bidder should have a minimum **Rs.2.00 crores annual turnover** in each of last three financial year's ending on 31st March, 2022. [Non-statutory documents].

- a) Copies of Profit & Loss A/C and BALANCE SHEET for the financial year 2018-19, 2019-20 and 2020-21 with duly audited/ certified by **Chartered Accountant with valid membership registration No.** [Non statutory Documents].
- b) Copy of a certificate (as per format given in **Annexure- 8**) from a registered **Chartered Accountant having membership registration number** in respect of "Annual Turnover in each of last three **Financial Years (i.e. 2018-19, 2019-20 and 2020-21)** must be **Rs.2.00 crores** or more. [statutory Documents].
- c) Copy of proof of the Bank solvency certificate of at least **Rs.1.00 crore** in favour of the Bidder issued by any Nationalized/ Scheduled Bank **after 01/10/2022**. [Non statutory Documents].

8.3 Technical Capability

1. Bidder shall depute one of their own trained and experienced Engineers for 12 months with minimum 2 years experience with Degree in the relevant field of Engineering from recognized Engineering College /

university – to provide assistant to Instructors to conduct the course smoothly at consignee location for 12 months from the date of signing the agreement. In addition free online support for 12 months shall be provided by the bidder as and when required by the consignee.

2. One set of user manual is required to be supplied with each electronic equipment to each consignee. The same user manual must be available online on bidders website for students to access from anywhere. Additionally quality e-learning content/software related to items offered must also be available online on bidders website for students to access and learn from anywhere. Teachers must be provided with suitable interactive software for smart classroom teaching. The bidder will also provide a subject expert from his company for conducting free 2 day seminars, 4 times a year in the warranty period.

3. The bidder shall permit their factory/site visit for one day for students for practical exposure

4. **An annual flexi MOU to be signed between the consignee and the bidder for 2 weeks industry training (including soft skill training and cost of travel, stay and food) for enrolled students after completion of their course.**

5. Bidder may call for **technical presentation** for the offered products and services as per the date and time will be informed by purchaser. This presentation will be part of technical evaluation if bidder fail to give satisfactory presentation then respective bidder's bid will be treated as **non responsive**

6. The bidder will have to submit samples of quoted items on demand and give demonstration in the prescribed time limit before opening of financial bid, this will be **part of technical evaluation**

9. General Criteria

1. The Bid should contain a covering letter enclosing earnest money, Form "A", with other documents as mentioned in various clauses of the tender. **Tender without form "A" duly signed will be rejected.** The fact that the bidder has signed the **Form "A"** will mean that the bidder has completely accepted these tender rules and that the bidder agrees to abide by these tender rules. No deviation from tender rules will be accepted under any circumstances even if the bidder may mention his own conditions in his tender. The tender rules and clause usually printed on the parties tenders or bills will not be binding on this department. If **Form "A"** is signed by bidder in token of his acceptance, he should not mention any other tender conditions. **The contents of the Form "A" should not be changed or amended. In other words tenders on stipulated conditions will not be acceptable by this office.**

2. It should be noted that documents should only be uploaded to the wbterder e-procurement portal and no hard copies shall be accepted related to the tender except the **Original Covering Letter and Declaration as per Annexure-6 in the Notarised Non Judicial Stamp Paper** of appropriate value. **If the original hard copy of the Covering Letter and Declaration as per Annexure-6 in the INR10 Notarized Non Judicial Stamp Paper is not submitted in the office of the purchaser before scheduled date (during office hours between 11.30 am to 4.30pm), the bid will be rejected and will not be considered for further process.**

3. No Bidders will be exempted from depositing the Application Fees and Earnest money.

4. **The bidder has to quote all the items mentioned in Tender document, partial bid will be rejected.** The items to be procured are specified in **Annexure-11**. In this Annexure, those items which should be supplied by the bidder as manufacturer and authorized dealer are shown as M/A.

5. The bidder as manufacturer should submit the name of the items, which are manufactured by them in **Annexure-1**. This annexure should also indicate the guarantee / warrantee of the items manufactured by them.

6. The bidder should submit the name of the items in **Annexure-2**, which they will supply as Authorized dealer. This annexure should also indicate the guarantee / warrantee of the items. format of authorization certificate should be submitted as per **Annexure-2.1**.
7. For rest of the items the bidder should give the information about the company's make and models in **Annexure-3**.
8. The bidder shall provide complete details of make and models of equipment, wherever required along with original colour catalogue with original product photograph (not required for Tools, consumables & accessories), the **bid will be rejected without this information**.
9. The bidder should submit the no deviation certificate in **Annexure-4**
10. **The bidder should supplied and executed successfully orders for similar items** to Government Education / Training institutes in Financial year 2018-19, 2019-20, 2020-21 like Govt. ITIs / Govt. Polytechnics / Govt. Engg. Colleges, PSU, Public Listed Company, any other State / Central Govt education establishments) in India. Order copies along with invoice / work completion report need to be enclosed with bid documents.
11. The bidder should have supply all the items as part of the BoQ should be as per the specification mentioned in the tender and brand new i.e. not refurbished and of the prevailing/current standard product range of the manufacturer at the time of the proposal.
12. The bidder should be a company registered in India under the Indian Companies Act 1956/ Partnership Firm/ Proprietorship Firm/ Society/ Trust etc. The bidders should submit copy of valid Certificate of Registration / Partnership Deed/ Trade License etc. attested by Company Secretary/ Authorized Signatory.
13. The Bidder company should have been in existence as a registered company in India and should have experience of at least 05 years in similar field business. A valid documents should be enclosed with the Bid document.
14. The bidding firm/company shall be an ISO 9001:2015 certified company. A copy of valid ISO certification should be enclosed with the bid. **The Bidders should have their own website and online grievance redressal mechanism**.
15. The bidder must have to submit a Declaration on INR 10 Judicial Stamp duly notarized for not having been debarred/blacklisted as per **Annexure- 6** either by the any Bid Inviting Authority or by any organization functional under Central/ State government/ Semi- government/ PSUs of central/ State governments. The bid will be rejected without this document.
16. The bidder should have minimum **Rs.2.00 cores annual turnover** in each of last three financial year's i.e., 2018-19, 2019-20 and 2020-21. Bidders audited annual reports/ financial statement for each of the three financial year's i.e., 2018-19, 2019-20 and 2020-21 have to be attached along with a certificate (**UDIN Ccertified**) from a practicing Chartered Accountant on his letter head confirming annual turnover **as per Annexure- 8**.
17. Bidder shall depute one of their own trained and experienced Engineers for 12 months with minimum 2 years experience with Degree in the relevant field of Engineering from recognized Engineering College / university – to provide assistant to Instructors to conduct the course smoothly at consignee location for 12 months from the date of signing the agreement. In addition free online support for 12 months shall be provided by the bidder as and when required by the consignee.

18. Financial bid and the rates shall be quoted for all the tendered items mentioned in technical specifications and BoQ. Bid quoted with partially items will be rejected. The bid will be evaluated on the individual item wise.

19. Prices shall be inclusive of all temporary permits, freight, insurance and all such other costs. Prices shall remain firm and no escalation shall be permissible. All statutory taxes and duties as applicable, within India shall be paid by the Supplier. For supply of Machines of foreign origin, the supplier shall also arrange for custom clearance, port handling and inland transportation/ insurance of the machines from Port to the consignee place.

20. Necessary LAN networking in the lab to be done by the bidder.

21. Successful bidder shall enter into an agreement with the Director of Industrial Training, West Bengal as per **Annexure -05**.

22. The bidder shall be liable to maintain all the equipment at site to ensure satisfactory warranty for a period of one year of the various equipments and their related accessories from the date of successful completion of the final acceptance test.

23. The warranty will not be applicable or will get void if the equipments, LAN networking, wiring, furniture etc. gets partly or fully damaged due to natural calamity, fire, disaster, electrical faults or due to mischievous or unscrupulous activity by the users.

24. The bidder must enter into an agreement to attend the complaints. Bidder shall device a complaint redressed mechanism in consultation with the purchaser. They shall also keep the records of each and every complaint received during warranty period. The purchaser will log the complaints through e-mail or by letter and action taken thereof in a logbook to be maintained by the principal of concerned ITI.

25. The bidder during the warranty period will respond the complaint within 7 days. The Penalty for non-compliance of the complaint shall be as under. S.No. Duration Penalty for Non-response
1 Upto 07 days from the logging of the complaint with the vendor Nil
2 Beyond 7 days upto 30 days 0.05% per day of the total project cost*
3 Beyond 31 days up to 60 days 0.1% per day of the total project cost*
4 Beyond 61 days of the logging of the complaint till rectification of the fault 0.2% per day of the total project cost*
* For calculation of penalty the project cost will be considered. The penalty, if any shall be deducted from the security deposit. In case the vendor does not attend to the complaints during the warranty period, the Security guarantees deducted from the payment will be forfeited.

26. One set of user manual is required to be supplied with each electronic equipment to each consignee. The same user manual must be available online on bidders website for students to access from anywhere. Additionally quality e-learning content/software related to items offered must also be available online on bidders website for students to access and learn from anywhere. Teachers must be provided with suitable interactive software for smart classroom teaching. The bidder will also provide a subject expert from his company for conducting free 2 day seminars, 4 times a year in the warranty period.

27. The bidder shall permit their factory/site visit for one day for Students/ Faculties for practical exposure.

28. **An annual flexi MOU** will be signed between the consignee and the bidder for 2 weeks industry training (including soft skill training and cost of travel, stay and food) for enrolled students after completion of their course.

29. Bidder may call for **technical presentation** for the offered products and services as per the date and time

will be informed by purchaser. This presentation will be part of technical evaluation if bidder fail to give satisfactory presentation then respective bidder's bid will be treated as **non responsive**.

30. The bidder must submit Income Tax return in name of organisation / firm for the last three Financial Years i.e. 2018-19, 2019-20 & 2020-21 otherwise the bid will be rejected.

31. The bidder must submit copy of Company PAN Number.

32. Earnest Money / Security Deposit to this office in previous bids will not be adjusted towards the present tender and no request will be entertained in this regard.

33. **Delivery Period should be 30 days** from the date of purchase order.

34. The successful bidder should supply full ordered quantity of items for a particular institute within the prescribed delivery period specified in the order. If the bidder faces difficulty in supply of ordered quantity within the delivery period then he should submit the representation indicating the appropriate reasons of delay. Power to extend delivery period would remain with Purchaser. If the delivery period is not extended by the purchaser then the order pertaining to the particular institute may be cancelled and the EMD will be forfeited.

35. The bidder will have to submit samples of quoted items on demand and give demonstration in the prescribed time limit before opening of financial bid, this will be **part of technical evaluation**. In case the samples are not produced in the prescribed time limit, then bid will be rejected and it shall be open to the undersigned to forfeit Earnest Money Deposited by the bidder. If the samples sent by the party are approved the same and may be adjusted in regular supply and in the case of rejection, they will be returned back to the party at their cost.

36. The purchaser may get the items inspected by the third party/ Govt. officers /such person or persons they deems fit, before supply at the manufacturing premises, or after supply at the institute. The purchaser deserves the right to reject all such items which do not come up to the specification, finish, quality and reliability. The decision of the purchaser will be final in such cases. The rejected items will be returned on the bidder's cost.

37. The Tender and rates quoted by the bidder will be valid up to 365 days from the date of opening of the tenders. All order placed up to this date on the rates quoted will be binding on bidder. The Bid Security should have the validity 90 days after defect liability period is over.

38. The items will have to be supplied at different Industrial Training Institutes of West Bengal, which would be specified in supply order also. Rates should be quoted F.O.R. destination .

39. All consignment must be dispatched freight paid to concern Govt. ITI. "To pay" Railway Receipt/Freight Receipts will not be accepted.

40. The purchaser reserves the rights for any changes/cancellation/rejection of any part or whole tender, without assigning any reason what so ever.

41. 100% payment will be released after the safe receipt, as per specifications and installation and demonstration of the Training Equipments & Machineries.

42. It must be noted that normally all correspondence and transactions will be made only with the parties whose tenders have been accepted and not with anybody else.

43. Bidder's offer is liable to be rejected if they don't upload any of the certificates / documents sought in the Bid document, Additional terms and conditions and Corrigendum if any.

44. Data Sheet of the product (s) and itemwise compliance offered in the bid, are to be uploaded along with the bid documents. Buyers can match and verify the Data Sheet with the product specifications offered. In case of any unexplained mismatch of technical parameters, the bid is liable for rejection.

45. Factory Generated Test Certificate should be sent Along with the supply for training equipments. A copy of sample test certificate should enclosed with bid document.

46. Any dispute arising out of this tender or supply of any other matter will fall under the civil jurisdiction of High Court, Kolkata only.

10. DATE & TIMESCHEDULE

Sl. No.	Items	Date(s)
1	Date of uploading of N.I.T. Documents (online)	09/11/2022 at 1:00 pm
2	Documents download start date (Online)	09/11/2022 at 6:30 pm
3	Bid Submission start date (On line)	10/11/2022 at 11.00 am
4	Pre-Bid Meeting at O/O DIT KarigoriBhavan	17/11/2022 at 2.00 pm
5	Bid Submission closing date (On line)	16/12/2022 at 1.00 pm
6	Submission of Covering Letter with FORM A and Declaration as per Annexure-6 in the INR10 Notarised Non Judicial Stamp Paper.	19/12/2022 up to 03:00 pm
7	Bid opening date for Technical Proposals (Online) (Techno Commercial Bid)	20/12/2022 at 12:00 noon.
8	Date of uploading list for Technically Qualified Bidder (Online)(Financial Bid)	To be notified later
9	Bid opening date for Financial Proposals (Online)(Financial Bid)	To be notified later

11. Conditional/Incomplete tender will not be accepted under any circumstances.

12. The intending tenderers/ Bidders are required to quote the rate online.

13. During scrutiny, if it comes to the notice of the tender inviting authority that the credential or any other paper found incorrect / manufactured /fabricated, that bidder would not be allowed to participate in the tender and that application will be rejected without any prejudice.

14. The Director of Industrial Training, West Bengal, reserves the right to cancel the N.I.T. or tendering process and also any or all tenders at any stage without assigning any reason to the applicant and no claim in this respect will be entertained.

15. Before issuance of the Letter of Acceptance/Work Order, the tender inviting authority may verify the credential and other documents of the lowest tenderer if found necessary. After verification if it is found that the documents submitted by the lowest tenderer is either manufactured or false in that case work order will not be

issued in favour of the said Tenderer under any circumstances.

16. During execution of the work, if reported or detected that the credential and other documents of the L1 bidders/working agency are found either manufactured or false in that case the entire work will be stopped and necessary action will be taken up as per Government rule.

17. This N.I.T. shall form a part of the contract document. The successful bidder on acceptance of his bid by the Accepting Authority, shall have to sign the contract consisting of N.I.T., Instruction to Bidders, Special Terms and Conditions, Specification of works, Drawings, all tender documents forming part of the bid as uploaded at the time of invitation of bid, the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.

18. Tenderers / Bidders will quote their rate in the financial bid as well as GST in the specific column of BOQ.

Sd/-
Director of Industrial Training
Govt. of West Bengal.

SECTION - A

INSTRUCTION TO BIDDERS

A . General guidance for e-Tendering:

Instructions / Guidelines for electronic submission of the tenders have been annexed for assisting the Bidders to participate in e-Tendering.

A.1. Registration of Contractor:

Any Bidder willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement System, through logging on to www.wbtenders.gov.in. The contractor is to click on the link for e -Tendering site as given on the web portal.

A.2. Digital Signature Certificate (DSC):

Each Bidder is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders from the approved service provider of the National Informatics Centre (NIC) on payment of requisite amount. Details are available at the Web Site stated in Clause A.1. above. DSC is given as a USB e-Token.

A.3. The Bidder can search and download N.I.T., Tender Document(s) & Corrigenda (if any) electronically from computer once he logs on to the website mentioned in Clause A.1. using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

A.4. Participation in more than one work:

A prospective bidder shall be allowed to participate in the NIT either in the capacity of individual or as a partner of a firm. If found to have applied severally in a single NIT all his applications will be rejected for that NIT.

A.4.1 Contents of Tender Documents:

Tender Documents comprises of the following contents as listed below, and will additionally include any Addenda/Corrigenda issued in accordance with Clause

A.4.2.

- a) Notice Inviting e-Tender (NIT)
- b) Section A. Instructions to Bidders
- c) Section B. Forms and Declaration
 - i. Covering Letter with FORM A.
 - ii. ANNEXURE 1– Certificate for Own Manufactured Items
 - iii. ANNEXURE-2 & 2.1- Certificate of the items manufactured by the other firm, which would be supplied by the bidder & Manufacturer's Authorization Form
 - iv. ANNEXURE 3 – Certificate of the items which are not manufactured by the bidder and also not authorized by the manufacturer
 - v. ANNEXURE 4– NO DEVIATION CERTIFICATE
 - vi. ANNEXURE 6- CERTIFICATE OF NON-BLACKLISTED;
 - vii. ANNEXURE 7 – PAST PERFORMANCE PROFILE
 - viii ANNEXURE-8- FINANCIAL STATEMENT
 - ix. ANNEXURE-9- COMPANY DETAILS
 - x. ANNEXURE-10- CHECKLIST
 - xi. ANNEXURE-11- Technical Compliance Report (Tender Schedule) with brochure and leaflet.
- d) Financial bid containing BOQ

A.4.3 At any time prior to the deadline for submission of bid, the Director of Industrial Training, West Bengal may, for any reason, whether at his own initiative or in response to a clarification or query raised

by a prospective bidder, modify the tender documents by issuing addenda/corrigenda.

A .5. Submission of Tenders:

Tenders are to be submitted through online to the website stated in Clause A.1. in two folders at a time for each work, one is Technical Proposal & the other is Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC) Virus free scanned copy of the documents are to be uploaded duly Digitally Signed. The documents will get encrypted (transformed into non readable formats).

A.5.1. Technical Proposal:

The Technical proposal should contain scanned and digitally signed copies of the following in two covers (folders).

A.5.1.1. Statutory Cover Containing the following documents:

(i) NIT

[N.B.– The rate will be quoted in the B.O.Q. of Financial Bid. Quoted rate will be encrypted in the B.O.Q. under Financial Bid. In case quoting any rate in **Tender Form**, the tender is liable to be summarily rejected.]

(ii) Proof of payment of EMD through online towards Earnest Money Deposit (EMD) and Tender fees as prescribed in the NIT against the schedule (as the case may be) to be uploaded.

(iii) Tender Schedule containing “**Make/Brand/Model with specification & description of the items (trade wise) for which quotation/ offer is to be submitted by the Bidder**” as per format given in the tender Schedule along with all technical details (Information brochure, Product leaflet/catalogue, etc of the quoted items, as the case may be) and other commercial terms and conditions, if any, should also be uploaded.

(iv) OEM authorization Certificate (in the given format) in respect of each and every trade-wise items must be uploaded with the NIT.

(v) Prequalification of Documents (Refer Sec-B , ANNEXURE-From 1-11).

Cover No	Cover	Document Type	Description
1	Fee/ PreQual/ Technica	.pdf	NIT
		.pdf	EMD
		.pdf	Covering Letter with FORM A
		.pdf	ALL ANNEXURE-From 1-10 (Refer Sec-B)
		.pdf	ANNEXURE-11- Technical Compliance Report (Tender Schedule) with brochure and leaflet
2	Finance	.xls	BOQ

A.5.1.2. Non -statutory Cover containing the following documents:

THE NON -STATUTORY /TECHNICAL DOCUMENTS STATED IN THE TABLE BELOW SHOULD BE ARRANGED IN THE FOLLOWING MANNER

Click the check boxes beside the necessary documents in the My Document list and then click the tab “Submit Non Statutory Documents ’ to send the selected documents to Non-Statutory folder. Next Click the tab “Click to Encrypt and upload” and then click the “Technical” Folder to upload the Technical Documents.

Sl No	Category Name	Sub-Category Description	Detail(s)
1	Certificate(s)	Certificate(s)	VAT/SALES TAX REGISTRATION CERTIFICATE ALONG WITH ACKNOWLEDGEMENT , PAN, LATEST IT ACKNOWLEDGEMENT, PTAX, LABOUR LICENCE, TRADE LICENCE (for last 03 years), EPF & ESI registration etc. (if not applicable, reasons with supporting documents are to be uploaded positively), ISO Certificate 9001:2015 AND Copies of PAN Card, Voter Card, Aaddhar Card, Power of Attorney (if required) for the signing authority of all Forms (Refer Sec-B)
2	Certificate(s)	GST Registration Certificate	GST Registration Certificate
3	Certificate(s)	Bank Solvency Certificate	Bank Solvency Certificate (issued after 01-01-2022)
4	Certificate(s)	The Micro, Small and Medium Enterprises Certificate	The Micro, Small and Medium Enterprises Certificate and Memorandum (if any)
5	Certificate(s)	P/ L and Balance Sheet 2018-2019	P/ L and Balance Sheet 2018-2019
6	Certificate(s)	Permanent Account Number	Permanent Account Number
7	COMPANY DETAILS	COMPANY DETAILS 1	PARTNERSHIP DEED, CO-OPERATIVE SOCIETY BYLAW, MOA,TRADE LICENCE (for last 03 years),COMPANY REGISTRATIONCERTIFICATE
8	COMPANY DETAILS	COMPANY DETAILS 2	COMPANY DETAILS 2 (GST return 2018-19, 2019-20 and 2020-21), (P.Tax return 2018-19, 2019-20 and 2020-21), (I.Tax return. 2018-19, 2019-20 and 2020-21 and Form 3CD & 3CB if applicable)
9	CREDENTIAL	CREDENTIAL 1	CREDENTIAL 1 (copies of all works order, Contact forms, Challan etc. for last 03 years)
10	CREDENTIAL	CREDENTIAL 2	COMPLETION CERTIFICATES (Bank Statement, Completion Certificate issued by the recipient)
11	DECLARATION	DECLARATION FILE 1	DECLARATION FILE 1 (Cover Letter with FORM-A)

12	DECLARATION	DECLARATION FILE 2	DECLARATION FILE 2 (Affidavit on a Notary Stamp Paper regarding non blacklisting/ Non Conviction by any court of law)
13	DECLARATION	DECLARATION FILE 3	DECLARATION FILE 3 (No Deviation Certificate)
14	DECLARATION	DECLARATION FILE 4	DECLARATION FILE 4 (Checklist in the prescribed format).
15	FINANCIAL INFO	WORK IN HAND	WORK IN HAND
16	FINANCIAL INFO	P/L AND BALANCE SHEET 2019-20	P/L AND BALANCE SHEET 2019-20
17	FINANCIAL INFO	P/L AND BALANCE SHEET 2020-21	P/L AND BALANCE SHEET 2020-21

A.5.2. Tender Evaluation Committee (TEC)

A.5.2.1. Evaluation Committee constituted as per Order of the TET&SD Department of Government of West Bengal will function as Evaluation Committee for selection of technically qualified contractors as well as evaluation of financial bid.

A.5.2.2. Opening of Technical Proposal:

Technical proposals will be opened by the Director of Industrial Training, West Bengal, and his authorized representative electronically from the website using their Digital Signature Certificate (DSC) .

A.5.2.3. Intending tenderers/ bidder may remain present if they so desire.

A.5.2.4. Cover (folder) for Statutory Documents (Ref. Sl. No. A.5.1.1.) will be opened first and if found in order, cover (folder) for Non-Statutory Documents (Ref. Sl.No. A.5.1.2.) will be opened. In case the documents found in the Cover (folder) for Statutory Documents are not in order, then the particular bid will be rejected and the cover (folder) for Non-Statutory Documents of that particular bid will not be opened.

A.5.2.5. Decrypted (transformed into readable formats) documents of the non-statutory cover will be downloaded & handed over to the Tender Evaluation Committee.

A.5.2.6. Pursuant to scrutiny & decision of the Tender Evaluation Committee the summary list of Technically eligible tenderers/ Bidders will be uploaded in the web portals .

A.5.2.7. During evaluation the committee may summon of the tenderers & seek clarification / information or original hard copy of any of the documents already submitted & if these are not produced within the stipulated time frame, their proposals will be liable for rejection.

A.5.3. Financial Proposal

A.5.3.1. The financial proposal should contain the following documents in one cover (folder) i.e. Bill of Quantities (BOQ). The bidder is to quote the rate online through computer in the space marked for quoting rate for all items in the BOQ.

A.5.3.2. Only downloaded copies of the above documents are to be uploaded virus scanned & Digitally Signed by the contractor.

A.6. Evaluation and comparison of bids:

For evaluation of Financial Proposal, comparison of rates offered by the bidders, who have qualified after evaluation of Technical Proposal, shall be made.

- i. The Bidders will evaluate and compare the quotations determined to be satisfactorily responsive i.e.

- the quotations which confirm to the laid down terms and conditions and specifications.
- ii. The Bidder shall quote for all of the items of a tender schedule, otherwise, the bidder would be declared as non-responsive and hence the bid will be cancelled.
 - iii. The quotations would be evaluated separately for each item out of at least three quoted rates.
 - iv. The lowest item price offered by the bidder will be normally accepted for final selection of the bidder, if there be no other discrepancy.

A.7. PRICE

- (a) All tender prices shall be quoted for delivery up to the consignee's point inclusive of all charges (taxes, freight, duties etc). The GST to be mentioned separately in the specific cell of BOQ. The item rate should be quoted inclusive of packing, installation and commissioning charges also in addition to the above. The evaluation of prices will be made based on item wise quoted value inclusive of all charges (GST, taxes, freight, duties, packing, installation, commissioning, entry tax, octroi, etc.). The prices quoted shall be written both in figures and words. The rates quoted by the Bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account. The prices shall be quoted in Indian Rupees only. Rates shall be valid throughout the period to be covered by the contract to be executed with successful tenderers along with any extensions as may be made by the competent authority from time to time.
- (b) Rates are to quoted in respect of supply, installation, testing, commissioning the materials with all accessories with **one year** warranty from the date of satisfactory completion of the work with **two years** comprehensive maintenance after the warranty period is over. The installation will include the mechanical, civil, electrical, furnishing work (if any) required at site. The bidder should take care that the rates and amounts are written in such a way its misinterpretation is not possible.
- (c) **Spare Parts:** -The Bidder will supplies of necessary maintenance equipment and spare parts will be made available for all items/equipments and the complete system for at least two years after warranty and maintenance period is over on a continuing basis.

A.8.. ACCEPTANCE OF MATERIAL/INSPECTION/QUALITY ASSURANCE

After issuance of purchase order in favour of successful tenderers/ bidders, the latter have to make necessary arrangement for inspection and testing of the consignment by the tender inviting authority or his representative, if required, at Govt. selected/ empanelled laboratory, Govt. approved Test Houses, BIS Labs, etc. The Inspected cleared consignment along with the test certificate in original issued by the authority of above mentioned Test House/Labs or original test certificate from the manufacturer, as the case may be, will be accepted by the consignee at the consignee's place.

A.9. SECURITY DEPOSIT/PERFORMANCE SECURITY

After acceptance of the consignment, **SECURITY DEPOSIT / PERFORMANCE SECURITY @ 10% of the purchase order** value is to be deducted in terms of Govt. of WB, G.O-5688-F(Y), dated Howrah the 3rd November, 2016 of successful Bidder at the time of processing the bills through Treasury/PAO and the same will be retained as Security Deposit till the end of the Guarantee / Warranty period for smooth performance of the material / item supplied, failing which the Security Deposit will be forfeited. The Security Deposit shall be valid till 90 days after the date of expiry of defect liability period. The Security Deposit shall be refunded after the expiry of Guarantee / Warranty period or the defect liability period on request to be made by the successful tenderers in case no defect is reported otherwise it will be forfeited, if defects are not rectified.

No interest on security deposit is admissible.

A.10. PAYMENT

- Payment will be made after execution of due supply as ordered subject to:
- i. Supply of the materials as per specification as provided in the tender document or accepted by the Tender Inviting Authority.

- ii. Installation & Commissioning and Testing, if needed, up to the satisfaction of the competent authority / consignee.
- iii. Supply of the materials/items within the period as specified in the purchase orders.
- iv. No additional charges will be paid other than the quoted price.
- v. According to West Bengal Govt. Treasury Rules actual payment will be made after successful completion of delivery.

A.11. GURANTEE

The guarantee period shall be for a minimum of 12 months or higher period as may be provided by bidder / manufacturer from the date of acceptance. The tenderer shall remain responsible without cost to buyer for all defects in materials/spares and workmanship which may develop in normal use and which have been called to the attention of the successful Tenderers. Prior to expiry of guarantee period, it will be the responsibility of the tenderers to take up the matter with their respective manufacturers for fulfilment of the guarantee provisions. In case of failure on the part of the tenderers to remedy the defects/replace the materials within reasonable period (seven days) in spite of due Intimation by the concerned Principal / Superintendent, Industrial Training Institute , Institute Authority reserves the right to remedy the defects / replace the materials at the cost and responsibility of the tenderers without further notice and the same shall be deducted from his security deposit. In addition, normal warranty as provided by the original equipment manufacturer has to be extended.

A.12. LIQUIDATED DAMAGES

Liquidated Damages shall be levied in case of delay in the delivery of goods or completion of Works and shall be levied at the rate of 2% per month of delay or part thereof. Liquidated Damages will be subject to a ceiling of 10% of the contract price and shall be levied by way of Pre-estimated damages and not by way of penalty. The Tender Inviting authority may consider the issue of Liquidated Damages in case of extension of delivery date.

A.13. INSURANCE

The Goods/Works under supply must be fully insured against any loss or damages during transit or storage or during construction at supplier's cost.

A.14. FORCE MAJEURE

There could be circumstances/events where the supplier/contractor may not be in a position in spite of his best efforts, to meet the delivery/completion schedule due to events beyond their control and not foreseeable such as wars or revolutions, fires, floods, epidemics, natural calamities, quarantine restrictions and freight embargo etc. In such cases suitable delivery extensions based on merit of the case may be granted for arranging the delivery of goods or completion of works. Also the supplier shall not be made liable for forfeiture of performance security, liquidated damages or termination of contract as per provisions made in the contract elsewhere.

A.15. PATENT RIGHTS

The supplier/contractor should have proper and valid license/right to the use of and/or supply the product/services for their design, material or manufacturing and its patent, trademark or industrial design rights in the purchaser's country. The supplier/contractor should safeguard the interest of the purchaser from any third party claim towards the infringement of same and indemnify the purchaser.

A.16. LAWS GOVERNING THE CONTRACT

- i. The contract shall be governed by the laws of the Union of India in force.
- ii. The courts of the place, from where the acceptance of tender has been issued, shall alone have jurisdiction to decide any dispute arising out of or in respect of the contract.
- iii. Irrespective of the place of delivery, the place of performance or place of payment under the contract or the place of issue of advance intimation of acceptance of tender, the contract shall be deemed to have been made at the place from where the acceptance of the tender has been issued.

A.17. ARBITRATION

In the event of any question, dispute or difference arising under the contract conditions of Contract, or any special conditions of contract, or in connection with the contract (except as to any matters the decision of which is specially provided for by these or the special conditions) the same shall be referred to the sole arbitration of an officer, from the Government Department other than the department which decided the contract as per prevailing norms of Govt. of West Bengal , having sufficient knowledge of

law, appointed to be the arbitrator of the purchaser. The decision of the arbitrator shall be final and binding on both the parties to this contract. In the event of the arbitrator dying, neglecting or refusing to act or resigning or being unable to act for any reason, it shall be lawful for the purchaser to appoint another arbitrator in place of the outgoing arbitrator in the manner aforesaid. It is further a term of the contract that no person other than the person appointed by the purchaser as aforesaid should act as arbitrator and if for any reason that is not possible, the matter is not to be referred to arbitration at all. Arbitrator may, from time to time, with the consent of all parties to the contract enlarge the time for making the award. In pursuance of a reference, the assessment of the costs incidental to the reference and award respectively shall be at the discretion of the arbitrator. Subject to the aforesaid, the Arbitration and Reconciliation Act, amended up to date and the rules there under and any statutory modification thereof for the time being in force shall be deemed to apply to the Arbitration proceedings under the clause. The arbitrator shall be requested to give reasoned award. The venue of arbitration shall be the place from which formal Acceptance of Tender is issued or such other place as the purchaser at his/her discretion may determine.

A.18. FRAUD AND CORRUPTION

The Bidders, Suppliers, Contractors and Consultants in the contracts require to observe the highest standard of ethics during the procurement and execution of this contract by not being engaged in Corrupt, fraudulent, collusive, coercive or obstructive practice as generally defined. Non Compliance of the above will lead to rejection of proposal for award/declaring a firm or individual ineligible etc. even for future bidding.

A.19. AWARD OF CONTRACT

The purchaser shall award the contract, within the validity period of tenders, to the bidder who meets the tender conditions in all aspects, has the necessary technical and production capabilities and financial resources and whose bid is substantially responsive to the tender conditions and has offered the lowest evaluated cost. The purchaser can, if so desired, depute a team of 3-4 technical experts to the premises of manufacturer to whom the contract is proposed to be awarded to satisfy itself that the manufacturer has the capability to produce the required quality. The terms of the accepted offer shall be incorporated in the purchase order.

A.20. TERMINATION FOR DEFAULT

Tender Inviting Authority may without prejudice to any other remedy or right of claim for breach of contract, by giving not less than 30 days' written notice of default sent to the Successful Tenderer, terminate the Contract in whole or in part if i) the Successful Tenderer materially fails to render any or all the services within the time period (s) specified in the Contract or any extension thereof granted by Tender Inviting Authority in writing and fails to remedy its failure within a period of thirty (30) days after receipt of the default notice from Tender Inviting Authority, ii) the Successful Tenderer in the judgment of Tender Inviting Authority has engaged in corrupt or fraudulent practices in competing or in executing the contract and iii) the project (maintenance support) is not carried out according to specification due to deficiency in service as per terms of the contract. **In such case Tender Inviting Authority shall forfeit the Security Deposit of the Tenderer and may black-list the Successful Tenderer.**

A.21. PENALTY FOR FORMATION OF CARTEL OR FURNISHING OF FRAUDULENT/MISLEADING DOCUMENTS

If, during the tender process or at any stage during the validity of the tender period, it is found that a tenderer(s) has formed a cartel in whatsoever form or name to fix up the rates or suppliers to the detriment of the fairness of the tender process, penal measures shall be initiated. Similar penal measures shall also be initiated against those tenderers who have submitted false/misleading/fraudulent documents or made incorrect declarations. The penal measure will be

Forfeiture of Earnest Money / Forfeiture of Performance Guarantee / Cancellation from the approved list of suppliers and debarment from further supply orders / Black listing from all Departmental tenders (called by the TET & Skill Dev. or others) of the Tenderer, the Principals of the firm(s) and the concerned distributor(s) for a period of three years.

A.22. APPEAL

Appeal against the decision to impose such a penalty will lie with the Tender Evaluation Committee. Review against the decision of the Tender Evaluation Committee will lie with the Tech. Edn., Trg. & Skill Dev. Deptt., Govt. of WB. The Secretary will be the appellate authority within the Department of Tech. Edn., Trg. & Skill Dev. Deptt., Govt. of West Bengal. Before imposing any penalty as per clauses mentioned above, the concerned supplier may appeal to the Tender Inviting Authority citing the proper reasons for non-imposing the penalty as stated.

A.23. PENALTY CLAUSE

In case of supply of the sub-standard items, any such items determined by the appropriate authority will not be accepted and the payment for such items will not be made to the supplier. Debarment from participation in next tender processes of the Technical Education, Training and Skill Development Department. The tender selection committee reserves the right to declare a firm/Company blacklisted for five years due to the following reasons:

If the supplier

- i. Withdraws from agreement after being the “Lowest Quoted Tenderer”
- ii. Failure in supply within stipulated period.
- iii. For supply of substandard items within tender period as determined by the Competent Authority.
- iv. Submits false or fabricated documents for participating in the tender, if proved later on.
- v. Tenderer who have quoted absurdly high or low rate in the opinion of Tender selection Committee, with the intention to vitiate the tender process.
- vi. Submission of tender for the product(s) for which the concerned company has been blacklisted either by the state Government or other State/Central Government Organization.
- vii. Submission of tender during the period of blacklisting of Concern/Company either by Tender Inviting Authority or by any State Government or by other State/Central Government.
- viii. The following Financial Penalties for deficiencies in services/supplies during the period of validity and its subsequent extensions may be imposed:

Forfeiture of Earnest Money Deposit/Forfeiture of Performance Bank Guarantee.

A.24. BANKRUPTCY

If the Successful Tenderer/ Bidder becomes bankrupt or has a receiving order made against him or compound with his creditors or being a corporation commences to be wound up, not being a voluntary winding up for the purpose only of amalgamation or reconstruction, or carries on their business under a receiver for the benefit of their creditors or any of them, Tender Inviting Authority shall be at liberty to terminate the engagement forthwith without any notice in writing to the Successful Tenderer or to the liquidator or receiver or to any person in whom the Successful Tenderer may become vested and without any compensation to give such liquidator or receiver or other person the option of carrying out the engagement subject to their providing a guarantee for the due and faithful performance of the engagement up to an amount to be determined by Tender Inviting Authority.

A.25. AMENDMENT OF BID DOCUMENT

At any time before the deadline for submission of bids, Tender Inviting Authority for any reason, whether at its own initiative or in response to the clarifications requested by bidders may modify the bid document by amendment thereto. All bidders who have participated in the bid document should follow the notification of the amendment, and such modification will be binding on them.

A.26. INCIDENTAL SERVICES

The supplier shall be required to provide any or all of the following services, including additional services, if any, free of cost: Performance or supervision of the on-site assembly and/or start-up of the supplied goods; Furnishing of tools required for assembly and/or maintenance of the supplied Goods; Furnishing of detailed ‘Operations and Maintenance Manual’, ‘Spare Parts Manual’, ‘Instruction Manual’, ‘Electrical Circuit Diagram’, ‘Hydraulic Circuit Diagram’ etc. (Two Set Each) for each appropriate unit of supplied goods (especially for Machineries). Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this Contract; and Training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance and/or repair of the supplied Goods.

A.27. SPECIAL TERMS AND CONDITIONS

While tenders are under consideration, tenderers and their representatives or other interested parties shall refrain from contacting by any means any persons or representatives of the buyer on matters relating to the tender under study. The buyer if necessary may request for clarification of tender in writing. After the public opening of the tenders, information relating to examination, clarification and evaluation of tenders and recommendations concerning awards shall not be disclosed to bidders or other persons not officially concerned with this process until the successful bidder is notified of the award of the contract.

A.28. SIGNING of CONTRACT/AGREEMENT

At the same time as the Tender Inviting Authority/Purchaser notifies the successful bidder that their bid has been accepted, the Purchaser will send the bidder the Prescribed Contract Form provided in the bidding documents, incorporating all agreements between the parties. Within 07 days of receipt of the Contract Form, the successful bidder shall execute an agreement with the Purchaser/Tender Inviting Authority or his representative.

Sd/-
Director of Industrial Training
Govt. of West Bengal.

SECTION - B

FORMAT OF COVERING LETTER

Notice Inviting e-TENDER NO: DITWB/ HQ (CPC) / NIT-01 (e -Tender) /2022-23

Tender No. -

As per terms & conditions of the tender following documents are submitted as under:-

(1) Form "A" Enclosure No.

(2) EMD for Rs..... Enclosure No.....

Issued from

Payable at

(3) Copy of GST registration Enclosure No.....

We have quoted rates for items. The entire item is quoted with branded name & full specification. The technical detail as desired is submitted in prescribed format as per enclosed Annexure.

Date:

(Authorized Signatory) Signature:

Name:

Designation:

Address:

Seal:

Email Date:

FORM - A

Ref. No.....

Date.....

To,
The Director of Industrial Training
West Bengal
Karigari Bhawan, B/7, Action Area-III (2nd Floor),
New Town, Rajarhat,
Kolkata-700160

I/We (Name of authorized signatory) Name of Firm
.....

Address..... have read the
tender rules for the supply of various stores as per tender notice to the Govt. Industrial Training
Institutes in West Bengal and I/We full accept the Bidding rules supplied to me / us with the Bidding
Documents.

Date :

(Authorized Signatory) Signature:

Name:

Designation:

Address:

Seal:

Email Date:

Certificate for Own Manufactured Items

No.

Dated.....

To
 The Director of Industrial Training
 West Bengal
 Karigari Bhawan, B/7, Action Area-III (2nd Floor),
 New Town, Rajarhat,
 Kolkata-700160

Dear sir,

We hereby certify and confirm that following items/equipments are being manufactured by us. We hereby extend our guarantee and warranty for one year for the items mentioned below which is an integral part of the package to be offered by us as a part of bid against the Tender No. Date: published by you.

Sl.No.	Item	Model No.

(Authorized Signatory) Signature:

Name:

Designation:

Address:

Seal:

Email Date:

Note: Attach separate sheet if required.

Certificate of the items manufactured by the other firm, which would be supplied by the bidder

No.

Dated.....

To
 The Director of Industrial Training
 West Bengal
 KarigariBhawan, B/7, Action Area-III (2ndFloor),
 New Town, Rajarhat,
 Kolkata-700160

Dear sir,

We hereby declare that the below mentioned items/equipments will be supplied by us whose OEM has extended full guarantee and warranty for one year.

Sl. No.	Name of the item	Name of OEM	Brand/Model No.
1			
2			
3			

(Authorized Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Email Date:

Note: Attach separate sheet if required.

Manufacturer's Authorization Form

No.

Dated.....

To
The Director of Industrial Training
West Bengal
Karigari Bhawan, B/7, Action Area-III (2nd Floor),
New Town, Rajarhat,
Kolkata-700160

Dear sir,

We who are established and reputable manufacturers of (name and description of goods offered) having factories at..... (Address of factory), are the principal manufacturer of the items which we will supply to M/s..... . We hereby extend our guarantee and warranty for one year for these items.

Yours faithfully

(Authorized Signatory) Signature:

Name:

Designation:

Address:

Seal:

E-mail of the Manufacturer Date:

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by an authorized person

Certificate of the items which are not manufactured by the bidder and also not authorized by the manufacturer

No.

Dated.....

To,
 The Director of Industrial Training
 West Bengal
 Karigari Bhawan, B/7, Action Area-III (2ndFloor),
 New Town, Rajarhat, Kolkata-700160

Dear sir

We hereby declare that the below mentioned items/equipments will be supplied by us which are not manufactured by us and we are not the authorized dealer also. We extend full guarantee and warranty for one year.

Sl. No.	Name of the item	Brand/Model No.

(Authorized Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Email Date:

Note: Attach separate sheet if required.

No Deviation Certificate

No.

Dated.....

To,
The Director of Industrial Training
West Bengal
Karigari Bhawan, B/7, Action Area-III (2nd Floor),
New Town, Rajarhat, Kolkata-700160

Dear sir,

This is to certify that the bid submitted by us is exactly inline with your tender (including amendments) no. dated . This is to certify that our offer contains no deviation against the specifications of the item mentioned in Annexure-11..

(Authorized Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Email Date:

CONTRACT AGREEMENT

(To be provided on INR100 Non Judicial Stamp Paper)

THIS AGREEMENT made the day of....., 2021 Between (Name of purchaser) of (Country of Purchaser) (hereinafter called "the Purchaser") of the one part and (Name of Supplier) of..... (City and Country of Supplier) (hereinafter called "the Supplier") of the other part :

WHEREAS the Purchaser is desirous that certain Goods viz., (Brief Description of Goods) and has accepted a bid by the Supplier for the supply of those goods in the sum of (Contract/P.O. Price in Words and Figures) (hereinafter called "Contract/P.O. Price ").

NOW THIS AGREEMENT WITNESSED AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract/P.O. referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
 - (a) The Form A and the Price Schedule submitted by the Bidder; (b) The quantity of items;
 - (c) The Technical Specifications;
 - (d) The Conditions of Tender/Purchase order;
3. After acceptance of the consignment, **SECURITY DEPOSIT / PERFORMANCE SECURITY @ 10% of the purchase order** value is to be deducted in terms of Govt. of WB, G.O-5688-F(Y), dated Howrah the 3rd November, 2016 of successful Bidder at the time of processing the bills through Treasury/PAO and the same will be retained as Security Deposit till the end of the Guarantee / Warranty period for smooth performance of the material / item supplied, failing which the Security Deposit will be forfeited. The Security Deposit shall be valid till 90 days after the date of expiry of defect liability period. The Security Deposit shall be refunded after the expiry of Guarantee / Warranty period or the defect liability period on request to be made by the successful tenderers in case no defect is reported otherwise it will be forfeited, if defects are not rectified.
4. Delivery Period should be 30 days from the date of purchase order.
5. The successful bidder should supply full ordered quantity of items for a particular institute within the prescribed delivery period specified in the order. If the bidder faces difficulty in supply of ordered quantity within the delivery period then he should submit the representation indicating the appropriate reasons of delay. Power to extend delivery period would remain with Purchaser. If the delivery period is not extended by the purchaser then the order pertaining to the particular institute may be cancelled and the security deposit equivalent to 10% of the value of the order will be forfeited.
6. The Tender and rates quoted by the bidder will be valid up to 365 Days from the date of opening of the tenders. All order placed up to this date on the rates quoted will be binding on bidder. The Security Deposit shall be valid till 90 days after the date of expiry of defect liability period.
7. 100% payment will be released after the safe receipt, as per specifications and installation and demonstration.
8. All consignment must be dispatched freight paid to concern Govt. ITI "To pay" Railway Receipt/Freight Receipts will not be accepted.
9. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the goods and to remedy defects therein in conformity in all respects with the provisions of the Contract.
10. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the goods and services and

the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

11. Bidder shall depute one of their own trained and experienced Engineers for 12 months with minimum 2 years experience with Degree in the relevant field of Engineering from recognized Engineering College / university – to provide assistant to Instructors to conduct the course smoothly at consignee location for 12 months from the date of signing the agreement. In addition free online support for 12 months shall be provided by the bidder as and when required by the consignee. Otherwise the Security Deposit will be forfeited.

12. One set of user manual is required to be supplied with each electronic equipment to each consignee The same user manual must be available online on bidders website for students to access from anywhere. Additionally quality e-learning content/software related to items offered must also be available online on bidders website for students to access and learn from anywhere. Teachers must be provided with suitable interactive software for smart classroom teaching. The bidder will also provide a subject expert from his company for conducting free 2 day seminars , 4 times a year in the warranty period. Otherwise the Security Deposit will be forfeited

13. The bidder shall permit their factory/site visit for one day for students for practical exposure. Otherwise the Security Deposit will be forfeited

14. **An annual flexi MOU** will be signed between the consignee and the bidder for 2 weeks industry training (including soft skill training and cost of travel, stay and food) for enrolled students after completion of their course. Otherwise the Security Deposit will be forfeited.

Brief particulars of the goods and services which shall be supplied/ provided by the Supplier are as under:

Sl. No.	Description of Goods	Qty. to be supplied	Unit Price	Total Price	Delivery Terms

Total Value of Contract / P.O.:-

Delivery Schedule:-

IN WITNESS where of the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, Sealed and Delivered by the
said (For the Purchaser)
in the presence of:.....

Signed, Sealed and Delivered by the
said (For the Supplier)
in the presence of:.....

CERTIFICATE

(To be provided on INR10 Non Judicial Stamp Paper)

I hereby certify that the above firm neither blacklisted / debarred/ de-empanelled by any Central/State Government/Public Undertaking/Institute nor is any criminal case registered / pending against the firm or its owner / partners anywhere in India.

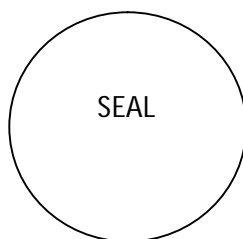
I hereby certify that the **supplied items** of our firm had never been **refused/rejected due to inferior or poor quality** by any Government Institutions/ College/ Department/Govt. Society etc.

I hereby certify that all the **items** in the purchase Order issued by the Government Institutions/ College/ Department/Govt. Society etc. in favour of our firm, had duly supplied by us in time.

I also certify that the above information is true and correct in every respect and in any case at a later date it is found that any details provided above are incorrect, any contract given to the above firm may be summarily terminated and the firm may be blacklisted.

Date:

Place:



Authorized Signatory

Name:

Designation:

Contact No :

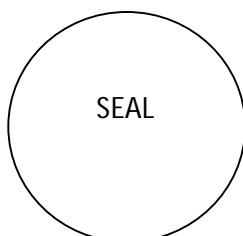
Note: The above declaration should be submitted in the Notarised Non Judicial Stamp Paper of appropriate value.

Past Performance Profile:

Year	Purchase Order No. & Date (Copy of the Orders to be attached)	Order Amount in Rs.	Date of successfully completion of ordered Item	Whether supplied item(s) is in successful operation for at least one year	Contact Details of Client
2018-19					
2019-20					
2020-21					

Date:

Place:



Authorized Signatory

Name:

Designation:

Contact No :

N.B. - All Certificates in respect of individual P.O./ Contract of Government Institution/ College/ Department/Govt. Society etc. should be attached.

(To be provided on letter head of the CA firm)

ANNEXURE – 8

FINANCIAL STATEMENT

B. 1 Name of Firm/Organization:

B. 2 Summary of Annual Turnover on the basis of the audited financial statement of the last three financial years. (Attach the copies of the audited financial statement including P/L Accounts and Balance Sheets of the last 03 (three) financial years ended 31-03-2021).

	Financial Year 2018-2019 (Rs.In lakh)	Financial Year 2019-2020 (Rs.In lakh)	Financial Year 2020-2021 (Rs. In lakh)	Average of Three Years
Annual Turnover				

.....
Certified and Signed by the
Chartered Accountant of the firm

.....
Name of the officer

.....
Name of the Firm with Seal

Date :

N.B.: Annual turnover should UDIN Certified.

COMPANY DETAILS

Name of the bidder		
Date of Incorporation / Establishment		
Website address (*Compulsory)		
PAN Number		
GST Registration Number		
Bidder's Bidding Capacity for the tendered items (As a Manufacturer/ Trader/ dealer / channel partner / system integrator, etc.) [One should be specified]		
Bank Details	Account Number	
	IFS Code	
	Bank Name	
	Branch Name	
Registered Office Address		
Address on whom the purchase order to be placed		
Authorized Signatory Details (Company/Firm Authorization by the competent authority, to be attached)	Name	
	Designation	
	Email	
	Phone	
Details of Contact other than Authorized Signatory	Name	
	Designation	
	Email	
	Phone	

Date:

Signature and Seal of the Tenderer:

Place:

Name in Block Letter:

Designation:

Contact no.

CHECKLIST FOR BIDDERS TO BE SUBMITTED IN DULY FILLED AND SIGNED

Sl. No.	Name of the Document	Submitted (Yes/No)
1	Covering Letter with FORM A	
2	ANNEXURE 1– Certificate for Own Manufactured Items	
3	ANNEXURE-2 & 2.1- Certificate of the items manufactured by the other firm, which would be supplied by the bidder & Manufacturer's Authorization Form.	
4	ANNEXURE 3 – Certificate of the items which are not manufactured by the bidder and also not authorized by the manufacturer	
5	ANNEXURE 4– NO DEVIATION CERTIFICATE	
6	ANNEXURE 5 - CONTRACT AGREEMENT	
7	ANNEXURE 6- CERTIFICATE OF NON-BLACKLISTED	
8	ANNEXURE 7 – PAST PERFORMANCE PROFILE	
9	ANNEXURE-8- FINANCIAL STATEMENT	
10	ANNEXURE-9- COMPANY DETAILS	
11	ANNEXURE-10- CHECKLIST	
12	ANNEXURE-11- Technical Compliance Report (Tender Schedule) with brochure and leaflet.	
13	Notice Inviting Tender (NIT) should be Digitally Signed and Uploaded.	
14	Proof of payment of Application Fees and EMD through online towards Earnest Money Deposit (EMD) and Tender fees as prescribed in the NIT.	
15	Quote for all of the items of the tender schedule or not (If not then the bid treated as non-responsive bid).	
16	Copies of VAT/SALES TAX REGISTRATION CERTIFICATE ALONG WITH ACKNOWLEDGEMENT, PAN Card, GST Registration, Professional Tax Registration, ISO Certificate 9001:2015,	
17	The Micro, Small and Medium Enterprises Certificate and Memorandum (if any)	
18	Copy of TRADE License (for last 03 years) / Registration with the registrar of companies / Copy of Deed of Partnership Firms or Trust or Society / Valid Authorization of Distributorship / Dealership from Manufacturer (as the case may be)	
19	Copy of proof of the Bank solvency certificate of at least Rs.1.00 Crore in favour of the Bidder issued by any Nationalized/ Scheduled Bank after 01/01/2022.	
20	Copies of acknowledgement of Income Tax Return for last three Assessment Years 2019-20, 2020-21 and 2021-22.	
21	Copies of Auditor Report, P/L Account and Balance Sheet for last three Financial Years 2018-19, 2019-20 and 2020-21.	
22	Copies of acknowledgement of FORM 3CB (for Financial Years 2018-19, 2019-20 and 2020-21) & FORM 3CD (for Assessment Years 2019-20, 2020-21 and 2021-22) (if applicable) issued by Income Tax Deptt., Govt. of India, and certified by Chartered Accountant with valid membership registration No.	
23	Copies of acknowledgement GST Return of the last quarter of FY 2020-21.	

Note: Submission of tender without the above mentioned documents will lead to rejection/ disqualification of the tender.

Signature of the bidder with stamp

Tender Schedule - A
DRONE TECHNICIAN

Technical Product Specifications Sheet for the Equipments & Machineries

Sl. No	Item Name	Product Specifications
1	Combination Pliers – 200 mm	Combination Pliers – 200 mm
2	Soldering Station	It should have following Technical Specifications: Soldering : Power consumption: 60 W Input voltage :170 to 270 V Temperature range : 180 to 480°C
3	Multimeter	It should have following Technical Specifications: <ul style="list-style-type: none"> • 3 ¾ Digit • 4000 Counts • Large LCD Display with Auto/Manual Range • DC Voltage: upto 1000V • DC Current : upto 20A • AC Voltage: upto 750V • AC Current: upto 20A • Resistance Range : upto 40Mohm • Capacitance : upto 200µF • Frequency : upto 10MHz This should have the following Features <ul style="list-style-type: none"> • Data Hold, Max. / Min. Value Hold , Sampling rate is 3 times/second • Capacitance, Frequency / Duty Cycle, • Temperature and Transistor Test
4	Smart SMD tweezer Handheld	SMD tester tweezer with built-in display for Inductance, capacitance, resistance, and diode test capabilities.
5	Binoculars	Standard
6	Anemometer	Standard
7	Magnifier	Standard
8	Unassembled drone	It should have following Technical Specifications: 1 set of Quad copter kit includes: <ul style="list-style-type: none"> • GPS Module (1 no.) Concurrent GNSS: up to 10 Hz. • Propellers (4nos.) Length: 8" Pitch: 4.5" • Frame (1 no.) Motor Mounting Hole Dia.: 3 mm Arm Size: 220 x 40 mm. • BLDC Motors (4 nos.) Voltage: 7.2v~11.1v / 2s~3s Lipo/Li-Ion Shaft Length: 10mm or more Max Watts: 260W Minimum 900 KV or more Screw Size: M3 • ESC (Electronic Speed controllers) (4 nos.) : Brushless ESC,

		<p>30A or more upto 2-4S Brushless ESC. BEC output: 5V 2A.</p> <ul style="list-style-type: none"> • FCB (Flight Controller Board) (1 no.): Upto 14 PWM / servo output. Bus interface (UART, I2C, SPI); Provide redundant power input Multicolor LED lights. Provide a multi-tone buzzer Interface/Motor Winding Tone. • Camera (1 no.): Image Sensor: CCD Power: DC 5-36V. Operating Current: 5V@60mA; Horizontal Resolution: 600TVL. • Camera Receiver (1 no.): Channel: upto 150CH Power Supply: 5V Connector: SMA Female • Camera Transmitter (1 no.): Channels: upto 40CH Frequency: 5.6GHz-5.9GHz Antenna: RP-SMA Male • Guard (4 nos.): Length > 8" • RF Transmitter and receiver (1 pair) : More than 6 channels, 2.40 - 2.48 GHz frequency, Power ; 12V Battery 8 AA; • Receiver cables (6 nos.) Dupont cables 3 pin • Hovering function using LiDAR sensor (1 no.) Power ; 5V Communication; Serial <p>This should have the following Features Advance 8 bit or more processor with multiple PWM / servo output. Bus interface (UART, I2C, and SPI). Lidar Sensor for distance measurement. Light FPV camera with Stable characteristics, Battery Charger features built-in JST-XH balance plug ports and 3 LEDs to indicate charging status. 2.4GHz remote module System, Frequencies-Hopping and Low Power Consumption with Throttle curves, Pitch curves, Endpoint adjustments and Servo reversing</p> <p>Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes Set up should be provided with workbench with following specifications: The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets.</p>
9	Electricity Lab	<p>It should have following Technical Specifications: The Electricity Lab platform should support to understand basics of Electricity, DC and AC Sources of Electricity, Electronic Components, Series and Parallel Circuits, Voltage Divider and Current Divider Circuit, Circuit Analysis: Ohm's Law, Kirchhoff's Law, R-C circuit, L-C circuit, Transformer, Rectifier, Filter, Semiconductor Devices: Diode, BJT, (DC Power Supply: 5V, 200mA, Ripple: $\leq 100\text{mVrms}$, AC Power Supply: 6V, 1A), Should provide Galvanometer: 30 – 0 – 30 Resistance 80Ω, different</p>

		<p>Potentiometers. 1 Pole, 2 Way types Toggle Switch, 5 different types Copper Coils having turns: 200, 400, 800, 1600, 3200. The module should have facility to understand the basic laws and electrical and electronics fundamental in from of simulations, animations with theory. Training System should be Includes Components box with different type of Resistors, Capacitors, Transistors, Diode, Potentiometer, E, I, U cores, set of coils, Magnetic compass, Bar magnets, Screw driver Multimeter, Connection patch cords.</p> <p>Should be provided with Electricity learning content software to understand fundamental concept of Electronic Components (Resistance, Inductance, Capacitance, Semiconductor Diode, Transistor etc.), Series and Parallel Circuits, Voltage Divider and Current Divider Circuit, Circuit Analysis: Ohm`s Law, Kirchhoff`s Law, Lenz Law, faraday`s law,. Fundamentals of inductance Step up & Step Down Transformer</p> <p>This should have the following Features</p> <p>Should have Solderless connections Should have set of coils and cores to understand the Basics of Electromagnetic induction and Transformers. Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes Set up should be provided with workbench with following specifications:</p> <p>The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets</p>
10	SMD Technology Kit With WallChart	<p>It should have following Technical Specifications:</p> <ul style="list-style-type: none"> • SMD Identification Board • The user should familiarize with different SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC`s packages. • Proto Boards are special PCB`s with readymade solder pads for various SMD components & IC`s, which makes the soldering much easy. It includes Through Hole, SOP, and Chip Scale package Proto Boards. <p>This should have the following Features</p> <ul style="list-style-type: none"> • A variable temperature controlled soldering iron is supplied with lead. SMD components are supplied for solder practice .i.e., Resistor, Capacitor, Diode, Transistors Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes Set up should be provided with workbench with following specifications: The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets
11	Multiple Output DC Regulated Power Supply	<p>It should have following Technical Specifications:</p> <p>DC Output : A : 0-32 V, 2 A, continuously variable by means of Coarse and Fine controls B : 5 V, 5 A adjustable from 4 V - 6 V C:0 - ± 15 V, 1 A Dual Tracking adjustable Setting Resolution : Voltage : 10 mV, Current : 10 mA</p> <p>This should have the following Features</p> <p>Display : 3 digit for voltage & current LED indication for voltage & current Over Range Indication</p> <p>Line Regulation & Load regulation : $\pm (0.1 \% + 100\text{mV})$</p>
12	DC Regulated Variable Programmable DC Power Supply	<p>It should have following Technical Specifications:</p> <p>DC 0-30 V; 0-3 Amp with numeric keypad for settings of voltage and current and LCD for display of Voltage, Current & Power</p> <p>Current limit exceed indication (LED)</p>

		<p>Step increment for Voltage Constant voltage source and Constant current source</p> <p>This should have the following Features Display : 3 digit for voltage & current LED indication for voltage & current Over Range Indication USB interface with software Line Regulation & Load regulation : $\pm (0.1 \% + 100\text{mV})$</p>
13	Smart SMD tweezer Handheld	SMD tester tweezer with built-in display for Inductance, capacitance, resistance, and diode test capabilities.
14	100 MHz Mixed Signal Oscilloscope (4 Analog + 16 Digital Channel)	With more than 20Mpt memory Real time Sampling 1GSa/sec, having LAN Interface, RS232/UART, I2C, SPI trigger & decoding functions, two channel 25 MHz awg plus math functions like differentiation, integration, abs, AND, OR, NOT etc
15	25 MHz Arbitrary Waveform Generator with Digital Display for Frequency and Amplitude	Two Channel, 125MSa/Sec and 2Mpt memory with more than 150 different arbitrary waveforms, RS232, PRBS and built-in 8th order harmonic generation, and 225 MHz Frequency counter, Connectivity USB Device & Host
16	Handheld 3 3/4 Digit Multimeter	<p>It should have following Technical Specifications:</p> <ul style="list-style-type: none"> • 3 ¾ Digit • 4000 Counts • Large LCD Display with Auto/Manual Range • DC Voltage: upto 1000V • DC Current : upto 20A • AC Voltage: upto 750V • AC Current: upto 20A • Resistance Range : upto 40Mohm • Capacitance : upto 200μF • Frequency : upto 10MHz <p>This should have the following Features</p> <ul style="list-style-type: none"> • Data Hold, Max. / Min. Value Hold , Sampling rate is 3 times/second • Capacitance, Frequency / Duty Cycle, • Temperature and Transistor Test
17	3GHz Spectrum Analyzer with built-in Tracking Generator	Frequency Range 9 kHz to 3.2 GHz Resolution Bandwidth (-3 dB): 10Hz to 1 MHz, Display 8" TFT or more
18	SMD Soldering & De soldering Station with necessary accessories	<p>It should have following Technical Specifications: Soldering : Power consumption : 60 W Input voltage :170 to 270 V Temperature range : 180 to 480 ° C Desoldering : Power Consumption : 70 watts Input: 170 to 270 V (190 to 290 V AC) Temp range: 180 to 480°C Pump : diaphragm type For SMD Rework Power consumption : 270 W Air pump :diaphragm pump Hot air temperature: 200 to 550°C</p> <p>This should have the following Features Burn proof silicon cable with thermal resistance up to 0 - 600°C. Temperature Control with micro –controller technology. Safety feature should be provided Should be Digitally Calibrated through microcontroller to avoid analog components</p>

		tolerance.
19	Drone Work Bench	<p>An integrated workbench consisting of instrument panel and workbench should be suitable for students to learn and perform various experiments of drone related subjects. Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes with top made up of good quality 19 mm thick plywood and covered with 1.8 mm off white colour mica.</p> <p>Structure and design of Workbench should follow the below specifications:</p> <ol style="list-style-type: none"> 1. The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes for sturdiness. 2. The overall dimensions of Workbench should be not less than W = 1200 mm; D = 750 mm; H = 1150 mm. 3. MS drawers 03 numbers W = 275 mm; D = 375 mm; H = 100 mm and thickness 1.2mm with handle & lock on drawer should be provided. 4. For the panel section, raised back height of 1200mm from floor with matching height support from the side at a depth 500mm for instrument housing with a MS Panel strip below it for housing Electrical Sockets and Switches for external use. 5. Two Pole MCB (16A–Havells / Siemens) to be provided for safety of Workbench. 6. Workbench should work on Mains Supply - 230V AC, 50 Hz <p>Technical specifications of instruments and facility to be installed on the Workbench should be as under:</p> <ol style="list-style-type: none"> 1. Multiple Output DC regulated power supply It should have following Technical Specifications: DC Output : A : 0-32 V, 2 A, continuously variable by means of Coarse and Fine controls B : 5 V, 5 A adjustable from 4 V - 6 V C: 0 - ± 15 V, 1 A Dual Tracking adjustable Setting Resolution : Voltage : 10 mV Current : 10 mA Display : 3 digit for voltage & current , LED indication for voltage & current Over Range Indication. Line Regulation & Load regulation : $\pm (0.1 \% + 100\text{mV})$ 2. 100 MHz Mixed Signal Oscilloscope (4 Analog + 16 Digital Channel) It should have following Technical Specifications: 100 MHz 4 analog Channel and 16 digital channels oscilloscope, the oscilloscope should support 1GSa/s sampling for analog channel and 1GSa/s / 500MSa/s for digital channels , Memory Depth should be more than 20 Mpts, vertical range 1mV/div -10V / div, horizontal range 5ns/div to 50 s/div, It should have built in two channel 25MHz source with 14 bit vertical resolution and 200MSa/s sample rate , it should also have at least 26 nos. automatic measurements and 6 bits hardware counter, advance serial bus trigger and decoding functions including RS232/UART, I2C and SPI, multi triggering facility, Math functions like A+B, A-B, A×B, A/B, FFT, A&&B, A B, A^B, !A, Intg, Diff, Sqrt, Lg, Ln, Exp, Abs. 7 inches WVGA TFT Display, Computer Interface USB host and device and LAN. 3. 25 MHz Arbitrary Waveform Generator with Digital Display for Frequency and Amplitude It should have following Technical Specifications: Channel: 2 Max. Frequency: 25 MHz Sample rate: 200 MSa/s Basic Waveform: Sine (1μHz -25MHz), Square (1μHz -25MHz), Ramp (1μHz- 400KHz), Pulse (1μ -15MHz),

		<p>Built-in Arbitrary Waveform : More than 150 kinds, including Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, Haver Sine, Lorentz, Dual-Tone, etc.</p> <p>Modulation : AM,FM,PM,ASK,FSK,PSK,PWM</p> <p>Harmonic Generator : Built in 8th order, Even , Odd</p> <p>Memory : 2Mpt</p> <p>Vertical Resolution: 14 bits</p> <p>Frequency Counter : More than 150MHz</p> <p>Interfaces: USB Host, USB Device, LAN</p> <p>Power Voltage: 100 V to 240 V/ 50Hz</p> <p>Type: 3.5-inch TFT LCD</p> <p>4. 3GHz Spectrum Analyzer with built-in Tracking Generator It should have following Technical Specifications: Frequency Range: 9 kHz to 3.2 GHz Resolution Bandwidth(-3 dB): 10 Hz to 1 MHz Min. -145 dBm DANL Built in Tracking Generator Frequency range : 100 kHz to 3 GHz Output level range : (-40) dBm to 0 dBm Output level resolution : 1dB Communication Interface USB Host, USB Device, LAN (LXI) Display 8" TFT LCD Power Supply Input voltage range, AC : 100 V to 240 V (nom.) AC Supply frequency : 50 Hz</p> <p>5. SMD Soldering & De soldering Station with necessary accessories It should have following Technical Specifications: Soldering : Power consumption: 60 W Input voltage :170 to 270 V Temperature range: 180 to 480 °C Desoldering : Power Consumption: 70 watts Input : 170 to 270 V (190 to 290 V AC) Temp range : 180 to 480°C Pump : diaphragm type For SMD Rework Power consumption:270 W Air pump : diaphragm pump Hot air temperature: 200 to 550°C</p> <p>This should have the following Features</p> <ul style="list-style-type: none"> • Wheel (with locking mechanism) should be provided at legs of workbench. • Instruments should internally electrically connect and should be fitted in the panel such that only front panel and necessary interfaces are easily accessible to use. • The bench working area should be covered by 2 mm thick antistatic mat which help students to controls static discharge as static cause interference or damage to students, equipment and circuitry.
20	Analog-Digital Circuits Development Platform	<p>It should have following Technical Specifications:</p> <ul style="list-style-type: none"> • On Platform Breadboard to circuit design-2Nos.

		<ul style="list-style-type: none"> On board DC Power Supply: +5V/1A (fixed); ±15V/1A (fixed); ±15V/200mA (Variable) Ripple : ≤ 50 mVrms On Board AC Supply: 5V-0V-5V; 10V-0V-10V (Provision to use as 5V, 10V, 15V, 20V AC & also as center tap) Sine/ Square/ TTL Generator: 10Hz to 1MHz in 4 Steps (Variable in between the steps) Amplitude: Sine (0 to 15Vpp); Square Wave (0 to 10Vpp); TTL-5V (fixed) Fixed TTL (Clock): 0.1Hz Data Switches: 8 in Nos. (Toggle switches for High/Low TTL levels) with LED indication LED Display: 8 in Nos. (for High/Low TTL levels indication) Logic Probe: Logic level identifier H/L for TTL level (7 segment display) Potentiometer: 6nos (100Ω to 47KΩ) Speaker: 8Ω/2W for audio use Power Supply: 110-220V±10%, 50 Hz <p>The training set up should include single user Classroom / laboratory teaching, learning software module on Analog & Digital Electronic:</p> <p>The content should have easy explanation of various complex topics with animation and simulation for ease of student learning. It should also support learning through graphs, charts, along with mandatory rich content and theory to understand fundamental concepts, interactive learning objects etc.</p> <p>Analog Electronic to understand fundamental concept of Electronic Components, Series and Parallel Circuits, Voltage Divider and Current Divider Circuit, Circuit Analysis: Ohm's Law, Kirchhoff's Law, Loop and Mesh Analysis, Star and Delta Network, Network Theorems: Thevenin's, Norton's, Superposition, Maximum Power Transfer, Millman's, Reciprocity, Magnetism, Electromagnetism, Alternating Current Circuits, Transformer, Rectifier, Filter, Semiconductor Devices: Diode, BJT, FET, Operational Amplifier, Power Amplifier, Thyristor Family, Measuring Instruments: Oscilloscope, Multimeter.</p> <p>Digital Electronic to understand fundamental concept of Measuring Instruments: Oscilloscope, Multimeter, Digital Electronics, Number Systems, Codes, Complements, Boolean Algebra, Logic Gates, Arithmetic Circuits: Adder, Subtractor, Combinational Circuits: Multiplexer, Demultiplexer, Encoder, Decoder, Sequential Circuits (Flip-Flops): S-R Flip-Flop, D Flip-Flop, J-K Flip-Flop, T Flip-Flop, Registers and Counters.</p>
21	Applied Mechanics Training Platform	<p>It should have following features & technical specifications</p> <p>Training platform should help students to learn about nature of forces, different laws and theorems of forces such as Triangle Law, Parallelogram Law, Polygon Law of forces, Hook's Law, Lami's Theorem, etc. It should also help to study concepts of Simple Harmonic Motion, Inclined Plane and Sliding Friction.</p> <p>Should have spring balance of 500 gms, different types of slotted weights (100g, 50g, 20g, 10g, 5g), more than 3 mass hangers of 10 g. Should have brass ring force of more than 30 mm dia, Pulley of more than 35 mm dia, 3 or more nos. of Neodymium Magnet, 150g, 90g of rolling masses, friction block of more than 80g, pendulum of more than 55g, 90 degree inclined plane, scale of 360 degree.</p> <p>This should have the following Features</p> <p>Should have Wall mounting arrangement.</p>
22	Drone Battery Management Training Systems	<p>It should have following features & technical specifications</p> <p>Mains Supply : Single Phase, 230V ±10%, 50Hz</p> <p>Battery Type: Li-Ion 6S</p> <p>Battery capacity : 2000mAh</p> <p>Battery Voltage 24V</p> <p>Inbuilt configurable Battery Balancer and Charger.</p>

		<p>Optional Protocol : USB/I2C Machine Type : BLDC Rating: 100 Watt approx. Voltage Rating : 24V Current: 5 Amps. Approx. Speed : 2800 rpm \pm10% Should have Mechanical Loading arrangement, Aluminum casted Brake Drum/Pulley, 24V, 10Amp. Instrumentation power supply should have DC ammeter & voltmeter, Digital Tachometer. Should be able to perform experiments to understand battery management and importance of monitoring of cell voltage, current, Temperature & Cell balancing</p> <p>This should have the following Features Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes Set up should be provided with workbench with following specifications: The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets</p>
23	Charge Controller training system	<p>It should have following features & technical specifications</p> <ul style="list-style-type: none"> • Constant Current and PWM Based Charge controller • Battery level indicator • Lead Acid Battery : 12V,7Ah • Li-ion/LiPo Battery : 12V, upto 7.5Ah • Should have inbuilt DC Ammeter (10A) and voltmeter (20V). • Should be able to perform following experiments to study charging and discharging characteristics of Lead-Acid and Li-ion batteries, real time curve plotting using built-in DAQ. <p>This should have the following Features Should have PC Interface for real time curve plotting using built-in DAQ. Should have Meters and battery level indicator for analysis</p> <p>Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes Set up should be provided with workbench with following specifications: The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets</p>
24	BLDC (Brushless DC) Motor Training System	<p>Should have following Technical Specifications Voltage: 7.2V to 11.1V Inbuilt Power Supply: 12V ,10A RPM: 900rpm/v and more Shaft Length: ~variable Shaft Type: Smooth , Threaded Motor Type : Outrunner Max Watts: 260W to 450W ESC: 30A~40A Should have ESC (Electronic Speed Controller)</p>

		<p>This should have the following Features</p> <p>Should have PWM generator</p> <p>Should be able to perform experiments to test Electronic Speed Controller and it's connectivity with various motors</p> <p>Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes</p> <p>Set up should be provided with workbench with following specifications:</p> <p>The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood.</p> <p>Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx.</p> <p>With MS drawers 03 numbers with handle, lock & key</p> <p>Two Pole MCB (16A – Havells/ Siemens) for safety.</p> <p>Workbench with antistatic mat, caster wheels, multiple electrical sockets.</p> <p>Mains Cord,</p> <p>Patch Cord,</p> <p>USB Cable,</p> <p>Test probe</p>
25	Inverted pendulum	<p>It should have following Technical Specifications</p> <ul style="list-style-type: none"> • Support of Integrity Serial Bus System, CAN to Build Intelligent Device Network • Use of Open Hardware Platform, Arduino, to control Robot sub-Systems of motor-sensor • Inverted Pendulum Control by PID control • PWM Duty operation and Motor control by Encoder counter • Inverted Status Monitoring by Emulation • An Integrated development environment should provided with System <p>This should have the following Features</p> <p>Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes</p> <p>Set up should be provided with workbench with following specifications:</p> <p>The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood.</p> <p>Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx.</p> <p>With MS drawers 03 numbers with handle, lock & key</p> <p>Two Pole MCB (16A – Havells/ Siemens) for safety.</p> <p>Workbench with antistatic mat, caster wheels, multiple electrical sockets</p>
26	Drone Sensor Trainer Kit	<p>7" Graphical touch LCD with inbuilt cortex processor & DAQ for acquiring analog data and software for viewing the output waveforms with USB storage and HDMI output. Ethernet port to connect real world. Inverting, Non – Inverting, Power, Current, Instrumentation and Differential Amplifier, F to V, V to F, I to V, V to I Converter, High Pass and Low Pass Filter, Buffer, LED, Buzzer.</p> <p>Sensors: Accelerometer, Atmospheric pressure, Gyro, IMU, current, voltage and light.</p> <p>This should have the following Features</p> <p>Should have following features to learn the concepts of signal conditioning, study of sensors and it's circuit diagram.</p> <p>Fault finding to Types of signal conditioning and Sensors.</p> <p>See the sensor real timer graph using PC based software</p> <p>Sensors data logging using PC based software</p> <p>HDMI and Ethernet connectivity.</p> <p>Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes</p>

		<p>Set up should be provided with workbench with following specifications: The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets</p> <p>Single user Classroom / laboratory teaching, learning and simulation software module on Internet of Things</p>
27	Antenna Training System	<p>Antenna Training System for measuring and plotting radiation Patterns of 10 different Antennas, It should have on board RF & Tone Generators, Sine wave, 750 MHz approximately output adjustable RF Generator, approximately 1 KHz output adjustable Tone Generator, Forward & Reverse Directional Coupler, Slider type Matching Stub, 0-360° Antenna Rotation, Resolution 1°, Folded dipole with reflector Receiving Antenna, Level adjustable meter Detector Display, 2 mm Banana sockets should be provided for Interconnections.</p> <p>The training system should include Classroom / laboratory teaching, learning and simulation software module Antenna The content should have easy explanation of various complex topics with animation and simulation for ease of student learning. It should also support learning through graphs, charts, along with mandatory rich content and theory to understand fundamental concepts, interactive learning objects etc.</p> <p>Antenna: Electromagnetic Waves, Maxwell's Equation, Antenna Parameters: Radiation pattern, Power pattern, Directivity, Gain, Beam width, Bandwidth, Polarization, VSWR, Reciprocity and Antenna Loading, Classification of Antenna: Wire Antenna, Aperture Antenna, Printed Antenna, Leaky Wave Antenna, Reflector Antenna, and Lens Antenna. Different Antennas: Infinitesimal Antenna, Linear Antenna, Antenna Array, Half-Wave Dipole Antenna, Horn Antenna, Log and Helical Antenna, Parasitic Antenna – YAGI Antenna, Ground Quarter Wavelength Antenna</p> <p>This should have the following Features Should have onboard RF & Tone Generators. Transmitting and Receiving levels observed On Built- in Meters. Functional Block indicated On- board Mimics.</p> <p>Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes Set up should be provided with workbench with following specifications: The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets</p>
28	Advanced Microwave Integrated Circuit Lab	<p>System should have following systems :</p> <ol style="list-style-type: none"> 1. Microwave Generator 2. VSWR Meter 3. MIC Components 4. Transmitting and Receiving mast <p>Technical Specifications should be as follows</p> <ol style="list-style-type: none"> 1. Microwave Generator Frequency Range : 2.2 - 3GHz continuously variable Display : LCD Display

		<p>Impedance : 50V Min RF level : 5mW Output Level Variation : 10 - 20 dB Operating Modes : Sweep, CW, Int. AM, Int. FM, Ext. AM, PC communication Modulating Frequency : 100Hz to 5kHz AM square wave, FM triangular wave Power Supply : 230V \pm10%, 50Hz</p> <p>2. VSWR Meter Sensitivity : 0.1μV for 200W input impedance for full scale deflection Noise Level : Less than 0.02μV Range : 0 - 60 dB in 10 dB steps Input : Un-biased low and high impedance crystal biased crystal (200 and 200K) Meter Scale : SWR 1-4, SWR 3-10, dB 0-10, expand SWR 1-1.3, dB 0-2 Gain Control : Adjusts the reference level, variable range 0 -10 dB (approximate) Input Connector : BNC (F) Input Frequency : 1000Hz \pm10% Power Supply : 230V \pm10%, 50Hz</p> <p>3. Transmitting and Receiving mast</p> <p>Should have following: Matched Loads (5 Nos.) Short Coaxial Detector Microstrip Directional Coupler (10 dB) SMA to SMA Adapters (Both male & female) SMA (male) connector fitted cables Attenuator (3 dB) +12V DC Adaptor Transmitting and Receiving Mast SMA (Male) to BNC (Female) adaptor 3-pin Lunar cable</p> <p>Should be able to perform following experiments :</p> <ul style="list-style-type: none"> • Measurement of Transmission Loss and Reflection Loss, power division, coupling, isolation and return loss characteristics, coupling and directivity. • PC to PC Data Communication using MIC components, substrate dielectric constant using Ring Resonator • Study characteristic of low pass filter, Band pass & Band stop filters • Measurement of Characteristics of Patch Antennas and MIC Amplifier. • Measurement of Directivity and Gain of Antennas : Yagi Antenna, Patch Antenna, Dipole Antenna <p>The training set up should include single user Classroom / laboratory teaching, learning and simulation software module on RF & Microwave :</p> <p>The content should have easy explanation of various complex topics with animation and simulation for ease of student learning. It should also support learning through graphs, charts, along with mandatory rich content and theory to understand fundamental concepts, interactive learning objects etc.</p> <p>RF and Microwave: Explore the concept of Microwaves through interactive animation. In depth study of RF and Microwave components, devices and systems. Attractive three dimensional field patterns with different view angles. Observation, Analysis and Calculation of typical parameters and their effect. Simulate Microwave mathematical concepts in an innovative way</p> <p>This should have the following Features Should have following features Microwave Generator with internal AM and FM. PC to PC Data Communication Antenna Radiation Pattern. measurement Directivity and Gain measurement. Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes Set up should be provided with workbench with following specifications: The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets</p>
29	GPS training platform	Channel : 12 or more

		<p>Receiver Position Accuracy : 150 meter Time Accuracy : Synchronized to GPS time Update rate : 1 sec. Serial Communication : 9600 Baud Rate (default) Protocol: NMEA , Maximum Altitude : 18000 meters This should have the following Features USB for PC communication. GPS Software for analysis</p>
30	Wireless Communication modules	<p>Transmitter with RF Range 2.40- 2.48GHz, RF Power less than 20 dB, GFSK Modulation and PPM/PCM. Throttle curves, Pitch curves, Endpoint adjustments, Subtrim, Swash AFR mixes, Servo reversing, Timer, Dual rate, Exponential, and Elevons. Receiver with RF Range 2.40- 2.48GHz, GFSK Modulation</p> <p>This should have the following Features 2.4GHz remote Module has Bidirectional System, Frequencies-Hopping and Low Power Consumption with Throttle curves, Pitch curves, Endpoint adjustments and Servo reversing.</p>
31	FCB and ESC training platform	<p>8 bit or more bit processor with built-in IMU, multiple PWM/Servo output. Bus interface (UART, I2C, SPI). Pre-Installed firmware for Quadcopter (X and +) configuration, Gyroscope, Accelerometer/magnetometer, Barometer. UART (Serial Ports), I2C, SPI, ADC Inputs, Battery 3000mAh, 1000kv Brushless Motor with soldered connector, Propellers, 30A BLDC Electronic Speed Controller, USB Port. Multicolor LED lights. Provide multi-tone buzzer Interface.</p> <p>This should have the following Features Advance 8 bit or more bit processors multiple PWM / servo output Bus interface (UART, I2C, SPI) and Provide redundant power input Structure of workbench should be made up of 1.5 mm thick CRC epoxy coated pipes Set up should be provided with workbench with following specifications: The basic structure should be made of 38 x 38 x 1.5 mm CRC epoxy coated pipes and top made up of good quality 19 mm thick plywood. Dimension (LxWxH): 4 x 2.5 x 3 (ft.) approx. With MS drawers 03 numbers with handle, lock & key Two Pole MCB (16A – Havells/ Siemens) for safety. Workbench with antistatic mat, caster wheels, multiple electrical sockets</p>
32	Drone Gimbal Set with motor and control	<p>3 Axis Brushless Gimbal, Gimbal Controller, High quality light weight Material, BLDC motor, Motor drivers, Gyro Sensor</p> <p>This should have the following Features Durable Camera Mount. Gimbal Controller for FPV Aerial Photography</p>
33	NPNT compliant Micro UAV built for Mapping and Surveillance	<p>UAV Weight with standard payloads <2 Kg UAV Size with Propeller - < 80 cm x 80 cm Endurance/ Flight time (upto 1km AMSL) :20-25 minutes Range for live transmission (Radius) - 2 km Operating altitude (AGL) - 200m AGL (Above Ground Level) Maximum launch altitude (AMSL) : upto 2500m AMSL (Above Mean Sea Level) Wind Resistance - Minimum 10 m/s Autonomy Fully autonomous from Take-off to Landing without using any R/C controller Payload Characteristics – HD Daylight 1280x720P, Thermal 320x240P Ground Control Station Software with data-link equipment</p> <p>This should have the following Features Failsafe features <ul style="list-style-type: none"> Return to Home on communication failure </p>

		<ul style="list-style-type: none"> • Return to Home/Land on low battery or battery issues • Return to home on high winds • Multiple GPS on-board for GPS failure redundancy
34	HD Payload	HD Payload (Camera) 1280X720,5X Optical Zoom Video Resolution
35	Thermal Camera Payload	Thermal Camera Payload Resolution 320X240 pixels
36	Field Repair kits	1-Piece Drill, 1-Piece Case, 4-Pieces Masonry Drill Bits, 4-Pieces Wood Drill Bits, 30-Pieces Screws, 30-Pieces Wall Plugs, 1-Piece Screw Driver Set, 1-Piece Multimeter, 1-Piece Electrical Power Tester, 1-Piece Insulation Tape, 1-Piece Cutter, 1-Piece Hammer and 1-Piece Plier
37	Drone's spare parts kit Li-Po, Li-ion Batteries, BLDC motors, Propeller set, FCB, ESC, frame, GPS module.	Drone's spare parts kit Li-Po, Li-ion Batteries, BLDC motors, Propeller set, FCB, ESC, frame, GPS module.
38	Balance Charger for 2-4S Lipo Battery charger atleast 60 W	Balance Charger for 2-4S Lipo Battery charger atleast 60 W
39	Power distribution board	Power distribution board
40	Thrust measurement meter	Standard
41	Indoor netted facility	Indoor netted facility with frame (40 Lx10Wx10H) feet
42	Outdoor controlled netted testing facility	Outdoor controlled netted testing facility with frame (40Lx20Wx40H) feet

Tender Schedule -B

Remotely Piloted Aircraft / Drone Pilot

Technical Product Specifications Sheet for the Equipments & Machineries

Sl. No	Item Name	Product Specifications
1	Pliers	Standard
2	Soldering Station	It should have following Technical Specifications: Soldering : Power consumption: 60 W Input voltage :170 to 270 V Temperature range : 180 to 480°C
3	Multi meter	It should have following features: <ul style="list-style-type: none"> • Data Hold, Max. / Min. Value Hold , • Sampling rate is 3 times/second • Capacitance, Frequency / Duty Cycle, Temperature and Transistor Test It should have following Technical Specifications: <ul style="list-style-type: none"> • 3 ¾ Digit • 4000 Counts • Large LCD Display with Auto/Manual Range • DC Voltage: upto 1000V • DC Current : upto 20A • AC Voltage: upto 750V • AC Current: upto 20A • Resistance Range : upto 40 Mohm • Capacitance : upto 200µF • Frequency : upto 10MHz Accessories: Test Leads, Holster Temperature Probe Bead type
4	Tweezer	Standard
5	Binoculars	Standard
6	Anemometer	Standard
7	Magnifier	Standard
8	Assorted set of Tapes (masking, duct, scotch, double sided, cloth tapes etc)	Standard
9	Assorted sets of wires	(12 to 24 AWG wires)
10	Assorted set of sleeves	(2 mm to 20mm sleeves)
11	Assorted sets of ties (zip ties, bunching sleeves)	Standard
12	Assorted sets of epoxy	(quick fix, gorilla glue, 5mins epoxy, 24 hrs epoxy, hot glue etc)
13	Assorted set of screws	(M2 to M6)

14	First aid kit	
15	Drone Quad copter kit includes: <ul style="list-style-type: none"> • GPS Module • Propellers • BLDC Motors - • ESC (Electronic Speedcontrollers) • FCB (Flight Controller Board) /Auto pilot • Lipo Battery • Lipo Battery Charger • RF Transmitter and receiver • Drone base • Receiver cables • Lidar 	It should have following features: Advance 8 bit or more micro-processor/ micro-controller with multiple PWM / servo output. Bus interface (UART, I2C, and SPI). Lidar Sensor for distance measurement. Light FPV camera with Stable characteristics, Battery Charger features built-in JST-XH balance plug ports and 3 LEDs to indicate charging status. 2.4GHz remote module System, Frequencies-Hopping and Low Power Consumption with Throttle curves, Pitch curves, Endpoint adjustments and Servo reversing 1 set of Quad copter kit includes: <ul style="list-style-type: none"> • GPS Module (1 no.) Concurrent GNSS: up to 10 Hz. • Propellers (4nos.) Length: 8" Pitch: 4.5" • Frame (1 no.) Motor Mounting Hole Dia.: 3 mm Arm Size: 220 x 40 mm. • BLDC Motors (4 nos.) Voltage:7.2v~11.1v / 2s~3s Lipo/Li-Ion Shaft Length: 10mm or more Max Watts: 260W Minimum 900 KV or more Screw Size: M3 • ESC (Electronic Speed controllers) (4 nos.) : Brushless ESC, 30A or more upto 2-4S Brushless ESC. BEC output: 5V 2A. • FCB (Flight Controller Board) (1 no.): Upto 14 PWM / servo output. Bus interface (UART, I2C, SPI); Provide redundant power input Multicolor LED lights. Provide a multi-tone buzzer Interface /Motor Winding Tone. • Camera (1 no.): Image Sensor: CCD Power: DC 5-36V. Operating Current: 5V@60mA; Horizontal Resolution: 600TVL. • Camera Receiver (1 no.): Channel: upto 150CH Power Supply: 5V Connector: SMA Female • Camera Transmitter (1 no.): Channels: upto 40CH Frequency: 5.6GHz-5.9GHz Antenna: RP-SMA Male • Guard (4 nos.): Length > 8" • RF Transmitter and receiver (1 pair) :

		<p>More than 6 channels, 2.40 - 2.48 GHz frequency, Power ; 12V Battery 8 AA;</p> <ul style="list-style-type: none"> Receiver cables (6 nos.) Dupont cables 3 pin Hovering function using LiDAR sensor (1 no.) Power ; 5V Communication; Serial <p>Accessories: Lipo/Li-ion Battery and Charger Mains Cord Patch Cord USB Cable 1.5V x 8 AA/AAA Battery for remote</p>
16	NPNT compliant Micro UAV built for Mapping and surveillance. Mapping/RGB/Photogrammetry Payload, 15 MP and Ground Control Station Software with data-link equipment	<p>UAV Weight with standard payloads <2 Kg UAV Size with Propeller - < 80 cm x 80 cm Endurance/ Flight time (upto 1km AMSL) :20-25 minutes Range for live transmission (Radius) - 2 km Operating altitude (AGL) - 200m AGL (Above Ground Level) Maximum launch altitude (AMSL) : upto 2500m AMSL (Above Mean Sea Level) Wind Resistance - Minimum 10 m/s Autonomy Fully autonomous from Take-off to Landing without using any R/C controller Payload Characteristics – HD Daylight 1280x720P, Thermal 320x240P Ground Control Station Software with data-link equipment Should have Remote Video Transmission and Remote Payload Control Failsafe features</p> <ul style="list-style-type: none"> Return to Home on communication failure Return to Home/Land on low battery or battery issues Return to home on high winds <p>Accessories: Drone Battery charger Lithium based battery packs Logbooks</p>
17	HD Payload,	<p>HD Payload (Camera) 1280 X 720, 5X Optical Zoom Video Resolution</p>
18	Thermal Camera Payload	<p>High Resolution Thermal Camera Payload Resolution 320X240 pixels</p>
19	Field Repair kits	<p>1-Piece Drill, 1-Piece Case, 4-Pieces Masonry Drill Bits, 4-Pieces Wood Drill Bits, 30-Pieces Screws, 30-Pieces Wall Plugs, 1-Piece Screw Driver Set, 1-Piece Multimeter, 1-Piece Electrical Power Tester, 1-Piece Insulation Tape, 1-Piece Cutter, 1-Piece Hammer and 1-Piece Plier</p>
20	Mini Weather Monitoring Station with sensors	<p>Weather Monitoring System Technical Specifications: Operating Temperature Operating Voltage : +5V DC Operating Range : -10°C to 90°C Resolution : 1°C Relative Humidity Operating Voltage : +5V DC Operating Range : 0 to 95% Resolution : 5% Wind Speed Sensor</p>

		<p>Speed : 0 to 20m/S Resolution : 1m/S</p> <p>Wind Direction Sensor Direction : North, East, West, South, North-East, East-South, North-West, South-West</p> <p>Rainfall Operating Range : Unlimited Tipping bucket with 8 inch diameter collector & shows measurement in both cm as well as in mm</p> <p>Solar Radiation sensor Output : 0-2VDC Range : 0 to 2000W/m² Spectral Response : 400 to 1100 nm</p> <p>Atmospheric Pressure Sensor Detection Range : 15- 115kPa Response time : 5 Sec</p> <p>Air Quality Sensor (PM2.5) Detection Range : 10 - 500 ppm Response time : 5 Sec</p> <p>UV Index Sensor Response wavelength : 200nm-370nm Response time : 5 seconds</p> <p>Wireless Transmission : GPRS Based Cloud Services : 1 Year</p> <p>Some other parameters GSM based cloud connectivity, application software for Dashboard for remote monitoring and analysis</p> <p>Power Supply Battery : 12V/40Ah IoT Gateway : 220V AC 50Hz Solar Panel : minimum 50W</p> <p>Weather Monitoring Station Dimension (in mm) : 2400H X 450D X450L</p> <p>The system should support to perform following experiments: System should have Interactive SMART Dashboard for display information System should have GPRS connectivity for field testing Should have IoT gateway with Zigbee, USB and WiFi connectivity.</p> <p>The training should include online single user Classroom / laboratory teaching, learning software module. The content should have easy explanation of various complex topics for ease of student learning. It should also support learning through videos, graphs, charts, along with mandatory rich content and theory to understand fundamental concepts, interactive learning objects, FAQ, MCQ etc.</p> <p>Solar Technology module should have following key features:</p> <ul style="list-style-type: none"> • Renewable Energy • Basic Electrical & Electronics • Solar Thermal Energy • Solar Photovoltaic Energy • Solar Radiation • Solar Spectrum at the Earth's Surface • The Sun and Earth Movement • Angle of Sunrays on Solar Collector • Sun Tracking • Measurement of Solar Radiation • Photovoltaic • Solar PV System • PV System Design
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		<ul style="list-style-type: none"> Solar PV Application
21	GPS Trainer	It should have following features: USB for PC communication. GPS Software for analysis Channel : 12 or more Receiver Position Accuracy : 150 meter Time Accuracy : Synchronized to GPS time Update rate : 1 sec. Serial Communication : 9600 Baud Rate (default) Protocol: NMEA , Maximum Altitude : 18000 meters Accessories: USB Cable GPS Antenna Connectors
22	Handheld weather meter	Air Temperature :0°C to100°C Relative Humidity : 0% to 100 %RH UV Index, Atmospheric Pressure Range : 15- 115kPa Carbon dioxide (CO ₂) : 0 – 2000 ppm Carbon monoxide (CO) : 1 – 1000 ppm Temperature sensor : 0 to 100 degree Humidity sensor : 5 to 95% RH Power : 5V DC/1A PC interface : USB
23	Indoor netted facility	Indoor netted facility with frame Dimensions : (40 Lx10Wx10H) feet
24	Outdoor controlled netted testing facility	Outdoor controlled netted testing facility with frame Dimensions : (40Lx20Wx40H) feet
25	Spare parts kit for Drone	Drone's spare parts kit Li-Po, Li-ion Batteries, BLDC motors, Propeller set, FCB, ESC, frame, GPS module.
26	Balance Charger	Standard
27	Power distribution board	Standard
28	Simulator to teach drone assembly	It should have following features: Advance 8 bit or more bit micro-processor/ micro-controller multiple PWM / servo output Bus interface (UART, I2C, SPI) and provide redundant power input 8 bit or more bit micro-processor/ micro-controller with built-in IMU, multiple PWM/Servo output. Bus interface (UART, I2C, SPI). Pre-Installed firmware for Quadcopter (X and +) configuration, Gyroscope, Accelerometer / magnetometer, Barometer. UART (Serial Ports), I2C, SPI, ADC Inputs, Battery 3000mAH, 1000kv Brushless Motor with soldered connector, Propellers, 30A BLDC Electronic Speed Controller, USB Port. Multicolor LED lights. Provide multi-tone buzzer Interface. Accessories: Mains Cord Patch Cord USB Cable
29	Real Flight Simulator (Single User)	Learn to fly and practice new maneuvers with the intuitive simulator that has put more pilots in the air safely than any other. VR compatibility and game-like challenges make flight training fun and interactive, while multiplayer combat lets you challenge pilots worldwide Includes software and controller. Compatible with windows 7/8/10.
30	Thrust measurement meter	Standard
31	Universal Battery	Standard

	Eleminator (UBEC) Circuit	
32	Servo tester	Standard
33	Current meter	Standard
34	GPS Jammer	Standard
35	Drone upto 18KM	<ul style="list-style-type: none"> • Automatic flight • Payload or camera control • Up to 3 kg payload • IP55 rating • Up to 18 km • Flight time up to 40 minutes • Aircraft dimensions 600 x 600 x 500 mm (LxWxH) • Joystick Controller • Auto fly home and landing Camera angle control Camera shutter and zoom Multiple camera switching