



**DIRECTORATE OF TECHNICAL
EDUCATION AND TRAINING, ODISHA
(DTE&T)**



Killa Maidan, Buxi Bazar, KATAKA-753001
Phone No-0671(2301061), Fax-0671(2301961)

NIT No. DTET/2026-27/8384(3) Date: 18.07.2026

REQUEST FOR PROPOSAL (RFP)
TO
ESTABLISH CENTRE OF EXCELLENCE IN
ELECTRIC VEHICLE
TECHNOLOGY AT
GOVERNMENT INDUSTRIAL
TRAINING INSTITUTES

DTE&T under the administrative control of Skill Development & Technical Education Department, Government of Odisha (the Client) invites both Technical & Financial proposals from the world's leading OEM companies or their authorised channel partners through e-tender process for **“Establishment of Centre of Excellence (CoE) in Electric Vehicle Technology at Government Industrial Training Institutes (ITIs) of Odisha”** on Turnkey Basis. Bidders fulfilling the prescribed eligibility criteria of the RFP can access and download the complete RFP Document and other details from www.dtet.odisha.gov.in/www.tendersodisha.gov.in.

The major events under the bid process are:

Sr. No.	List of Key Events	Critical Dates
1	Date of Issue of RFP	20.07.2026
2	Due Date for Submission of Proposal	05.08.2026 (by 5:00 PM)
3	Date of Opening of Technical proposal	06.08.2026 (by 12:00 PM)
4	Date of Technical Presentation	To be informed to the technically qualified bidders later
5	Date of Opening Financial Proposal	Through the e-tender portal to be intimated later by e-mail to the technically qualified bidders.
6	Method of Selection	Least Cost Selection (LCS)

The proposals complete in all respect must be submitted through e-tender process latest by **05.08.2026** before **5:00 PM** clearly mentioning **“Request for Proposal for establishment of CoE in Electric Vehicle Technology at Govt. ITIs of Odisha”**. The proposals received beyond the last date and time will be rejected without assigning any reason. Prospective bidders are advised to regularly visit the DTE&T Odisha website (www.dtet.odisha.gov.in/en/tenders) and e-procurement (Tenders Odisha) Portal <https://tendersodisha.gov.in> for any Updates/Corrigendum/Amendment. Any subsequent updates will be announced on the DTE&T Odisha website and e-procurement Odisha portal. The authority reserves all the rights to reject any/ all proposals at any stage without assigning any reason thereof.

Sd/-
Director
DTE&T, Odisha
Date: 18.07.2026

Memo No. 8384(3)

- Copy to e-Governance Cell, SD&TE Department, Government of Odisha for publication in the website of the Department for wide publicity.
- Copy to Dr. Sradhananda Beura, Sr. Lecturer (IT), O/O DTE & T, Odisha for publication on the Website and Notice Board of DTE&T for wide publicity.

Sd/-
Director
DTE&T, Odisha



REQUEST FOR PROPOSAL
FOR
ESTABLISHMENT OF CENTRE OF EXCELLENCE IN
ELECTRIC VEHICLE TECHNOLOGY AT
GOVERNMENT INDUSTRIAL TRAINING INSTITUTES

Directorate of Technical Education and Training, Odisha

Killa Maidan, Buxi Bazar,

Kataka-753001

Phone No-0671(2301061),

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Disclaimer

The information contained in this Request for Proposal (herein after referred to either “RFP”) document or subsequently provided to the Bidders, whether verbally or in documentary or any other form by or on behalf of the Directorate of technical Education and Training, Odisha herein after referred to as DTE&T, or any of their employees or advisors, is provided to the Bidder(s) on the terms and conditions set out in this RFP document and all other terms and conditions subject to which such information is provided.

DTE&T reserves the right to reject any or all of the proposals submitted in response to this RFP document at any stage without assigning any reasons whatsoever. DTE&T, ODISHA also reserves the right to withhold or withdraw the process at any stage with intimation to all who submitted the RFP document response. DTE&T, ODISHA reserves the right to change/ modify/amend any or all of the provisions of this RFP document. Such changes would be posted only in its website (www.dtetodisha.gov.in). Prospective bidders are requested to visit the website frequently to keep them abreast with the latest developments on this tender.

This is not an agreement and is not an offer or invitation to enter into an agreement of any kind with any party. The purpose of this RFP is to provide interested parties with information that may be useful to them in making their technical & financial offers (Bids) pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the DTE&T, ODISHA in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP document may not be appropriate for all persons, and it is not possible for the DTE&T, ODISHA, their employees or advisors to consider the business/investment objectives, financial situation and particular needs of each Bidder who reads or uses this RFP document.

The assumptions, assessments, statements and information contained in this RFP may not be complete, accurate, adequate or correct. Each Bidder should conduct its own investigations and analysis and should check the accuracy, reliability and completeness of the information in this RFP document and wherever necessary obtain independent advice from appropriate sources. DTE&T, ODISHA, their employees and advisors make no representation nor warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the RFP document.

1. FACT SHEET

Sl. No.	Particular	Details
1.	Name of the Client	Director, Directorate of Technical Education and Training (DTE&T) under the administrative control of Skill Development & Technical Education Department, Government of Odisha.
2.	Method of Selection	Least Cost Selection (LCS)
3.	Mode of Submission	Online (e-tender) www.tendersodisha.gov.in
4.	Date of Issue of RFP(e-tender)	20/07/26
5.	Due date for submission of proposals	05/08/26 (by 5:00 PM) (www.tendersodisha.gov.in)
6.	Date of opening of Technical Proposal	06/08/26.02.2026 (by 12:00 PM)
7.	Date of Technical Presentation and	To be informed to the technically qualified bidders later.
8.	Date of Opening of Financial Proposal	Through the e-tender portal to be intimated later by e-mail to the technically qualified bidders
9.	Bid Processing Fee (Non-Refundable)	Rs. 10,000/- + GST: 18 % = Rs. 11,800/- (Payment should be done through online mode)
10.	Earnest Money Deposit (EMD) (Refundable)	INR 50,00,000/- valid for minimum 225 days from last date of bid submission. (through Online mode)
11.	Performance Security	The selected Bidder shall furnish 5% of the Contract value in shape of Bank Guarantee/e-Bank Guarantee in favour of “DTE&T Odisha” from any scheduled commercial bank and valid for 68 months.
12.	Address of the Client:	Director, Directorate of Technical Education and Training (DTE&T) Odisha, Killa Maidan, Buxi Bazar, Kataka, Pin Code: 753001 E-mail: dtetorissa@gmail.com ; & dtetodisha.procurement@gmail.com Contact person: 1. Smt. Rinata Das, Joint Director (Procurement), DTE&T Odisha, Mob. 9861132851

NOTE:

- Amendments/Corrigendum(a) to the RFP document, if any, would be published on the website of DTE&T Odisha and Odisha e-Procurement portal only. Please visit the website: www.dtet.odisha.gov.in/www.tendersodisha.gov.in regularly for the same.
- A bidder may submit their both technical and commercial proposals after fulfilling the minimum eligibility criteria mentioned in Section 4.

- Proposals must be submitted before the date, time and venue mentioned in the Factsheet through Online (e-tender) www.tendersodisha.gov.in. Proposals that are received after the deadline will not be considered.
- The Director, DTE&T reserves all the rights to cancel the Selection Process and reject any or all the proposals at any point of time.
- No contractual obligation whatsoever shall arise from the RFP document unless and until a formal contract is signed and executed between the Director, DTE&T and the Selected Bidder.
- The Director, DTE&T disclaims any factual or other errors in the RFP document (the onus is purely on each Bidder to verify such information) and the information provided therein are intended only to help the Bidder(s) to prepare a proposal in accordance with the terms and conditions as set out in this RFP document.
- **Exemption may be given to the local MSMEs/local Start-Ups (registered in Odisha) for submission of Tender Fee & EMD as per the Odisha Procurement Preference Policy for Micro and Small Manufacturing Enterprises-2023 (MSME Department Notification No. 566/MSME dated 24.01.2024) and Odisha General Finance Rules (OGFR) only after submission of proper documents as proof. An AFFIDAVIT may be submitted as per the TECH-11.**
- **Price Preference is not applicable in this tender.**
- Tender Fee and EMD exemption are not available to any Dealer/ Distributor/ Trader etc., who is not registered as a Manufacturer of similar category of Goods in Odisha.
- If a Bidder participates as Joint Venture (JV) /Consortium, the exemptions for submission of Tender Fee & EMD shall not be applicable for them.

2. E-TENDERING

Procedure for Participation in e-tendering

- 1) Web address of E-tendering website: [https:// www.tendersodisha.gov.in](https://www.tendersodisha.gov.in).
- 2) The Digital Signature enrollment has to be done with the e-token, after logging into the portal. The e-token may be obtained eMudhraCA/GNFC/IDRBT/MtnlTrustline/SafeScript/TCS.
- 3) Bidder then logs into the portal giving user id / password chosen during enrolment.
- 4) The e-token that is registered should be used by the bidder and should not be misused by others.
- 5) DSC once mapped to an account cannot remap to any other account. It can only be inactivated.
- 6) The Bidders can update well in advance, the documents such as certificates, purchase order details etc., under My Documents option and these can be selected as per tender requirements and then attached along with bid documents during bid submission. This will ensure lesser upload of bid documents.
- 7) After downloading / getting the tender schedules, the Bidder should go through them carefully and then submit the documents as per the tender document; otherwise, the bid will be rejected.
- 8) The BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for that tender. Bidders are allowed to enter the Bidder Name and Values only.
- 9) If there are any clarifications, this may be obtained online through the eProcurement Portal, or through the contact details given in the tender document. Bidder should take into account of the corrigendum published before submitting the bids online.
- 10) Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender schedule and they should be in PDF formats. If there is more than one document, they can be clubbed together.
- 11) Bidder should arrange for the EMD as specified in the tender.
- 12) The bidder reads the terms and conditions and accepts the same to proceed further to submit the bids
- 13) The bidder has to submit the tender document(s) online well in advance before the prescribed time to avoid any delay or problem during the bid submission process.
- 14) There is no limit on the size of the file uploaded at the server end. However, the upload is decided on the Memory available at the Client's System as well as the Network bandwidth available at the Client side at that point of time. In order to reduce the file size, bidders are suggested to scan the documents in 75- 100 DPI so that the clarity is maintained and also the size of file also gets reduced. This will help in quick uploading even at very low bandwidth speeds.
- 15) It is important to note that, the bidder has to Click on the Freeze Bid Button, to ensure that he/she completes the Bid Submission Process. Bids which are not Frozen are considered as Incomplete/Invalid bids and are not considered for evaluation purposes.
- 16) The Tender Inviting Authority (TIA) will not be held responsible for any sort of delay, or the difficulties faced during the submission of bids online by the bidders due to local issues.

- 17) The bidder may submit the bid documents online mode only, through this portal. Offline documents will not be handled through this system.
- 18) At the time of freezing the bid, the eProcurement system will give a successful bid updating message after uploading all the bid documents submitted and then a bid summary will be shown with the bid no, date & time of submission of the bid with all other relevant details. The documents submitted by the bidders will be digitally signed using the e-token of the bidder and then submitted.
- 19) After the bid submission, the bid summary has to be printed and kept as an acknowledgement as a token of the
- 20) The bid summary will act as a proof of bid submission for a tender floated and will also act as an entry point to participate in the bid opening event.
- 21) Successful bid submission from the system means, the bids as uploaded by the bidder is received and stored in the system.
- 22) System does not certify for its correctness.
- 23) The bidder should see that the bid documents submitted should be free from virus and if the documents could not be opened, due to virus, during tender opening, the bid is liable to be rejected
- 24) The time that is displayed from the server clock at the top of the tender Portal, will be valid for all actions of requesting bid submission, bid opening etc., in the e-Procurement portal. The Time followed in this portal is as per Indian Standard Time (IST) which is GMT+5:30. The bidders should adhere to this time during bid submission.
- 25) All the data being entered by the bidders would be encrypted at the client end and the software uses PKI encryption techniques to ensure the secrecy of the data. The data entered will not be viewable by unauthorized persons during bid submission and not viewable by any one until the time of bid opening. Overall, the submitted bid documents become readable only after the tender opening by the authorized individual transferred over secured Socket Layer (SSL) with 256-bit encryption technology. Data encryption of sensitive fields is also done.
- 26) The bidders are requested to submit the bids through online eProcurement system to the TIA well before the bid submission end date and time (as per Server System Clock).

3. SECTION I: Letter of Invitation

RFP No:

Date:

Name of the Assignment: “RFP for establishment of CoE in Electric Vehicle Technology at Govt. ITIs of Odisha”.

1. DTE&T under the administrative control of Skill Development & Technical Education Department, Government of Odisha (The Client) invites online Bids (both Technical & Financial) from the Original Equipment Manufacturer (OEM) or authorised Technology Partner/Channel Partner for **“Establishment of CoE in Electric Vehicle Technology at Govt. ITIs of Odisha”**. More details on the proposed assignment are provided at **Section-3: Terms of Reference (ToR)** of this bid document.
2. Bidder will be selected under **Least Cost Selection (LCS) method** as prescribed in the RFP Document.
3. The proposal, complete in all respect as specified in the RFP document must be accompanied with a **Non-refundable** amount of **Rs. 10,000/- + Rs. 1800 (GST @18%) = Rs. 11,800 (Rupees Eleven Thousand Eight Hundred)** towards **Tender Processing Fee** and a **refundable amount of INR 50,00,000/-** towards **EMD** valid for minimum 225 days from the last date of bid submission, failing which the bid will be rejected.
4. The last date and time for submission of Bid complete in all respects is mentioned as per the data sheet in www.tendersodisha.gov.in and the date of opening of the technical proposal, Technical Presentation & financial bid in the presence of the bidder’s representative at the specified address as mentioned in the Bidder Data Sheet . Representative of the bidder may attend the meeting with due authorization letter on behalf of the bidder.
5. This RFP includes following sections:
 - a. Letter of Invitation [**Section – I**]
 - b. Information to the Bidder [**Section – II**]
 - c. Terms of Reference [**Section – III**]
 - d. Technical Bid Submission Forms [**Section – IV**]
 - e. Financial Bid Submission Forms [**Section –V**]
 - f. Annexure [**Section – VI**]
6. While all information/data given in the RFP are accurate within the consideration of scope of the proposed assignment to the best of the Client’s knowledge, the Client holds no responsibility for accuracy of information and it is the responsibility of the bidder to check the validity of information/specifications/narrations included in this document. No claim whatsoever shall be admissible for the alleged loss/damage suffered by the bidders on account of such rejection. In case of any dispute/ ambiguity arising in the process relating to documents, the decision of the Tender calling authority shall be final, binding and cannot be challenged.
7. **The Client reserves the right to accept / modify/ reject any/all Bids / cancel the complete tender or part of it at any stage without assigning any reason thereof.**

**Director
DTE&T Odisha**

4. SECTION II: Information to the Bidders

4.1 Pre-Qualification/Eligibility Criteria:

Before opening and evaluation of the technical proposals, each bidder will be assessed based on the following pre-qualification criteria. The bidder is required to produce the copies of the required supportive documents / information as part of their technical proposal failing which the proposals will be rejected.

Sr. No.	Pre-Qualification Criteria	Specific Requirement	Documents Required
1	Legal Entity	The Bidder must be registered as either of the following: a. Company under Companies Act, 1956/2013 or b. Partnership Firm registered under the Indian Partnership Act, 1932 or Joint Ventures (JV)/Consortium. or c. Limited Liability Partnership registered under The Limited Liability Partnership Act, 2008 registered d. Registered Proprietorship Firm.	Registration documents of the Bidder as a duly registered legal entity in India along with: ● Registration document showing incorporation of the Bidder, ● Certified copy of registered Partnership Deed, ● PAN Card of the registered legal entity, ● GST certificate of the registered legal entity (Form GST REG-06), ● Any other supporting document, as may be required.
2	OEM or Authorised Technology/ Channel Partner	The bidder should be an original equipment manufacturer (OEM) or Authorised Channel Partner/Technology Partner of the OEM.	● For Original Equipment Manufacturer (OEM) - Copy of the manufacturing license, or ● For the Authorized Channel Partner/ Technology Partner: An undertaking from the OEM is required stating that they would facilitate the Bidder on a regular basis with technology/product updates and extend support for the warranty as well and along with manufacturing license of OEM. (TECH-9)
3	Operation	The Bidder Firm should have been in operation in relevant field for the past 03 (Three) years as on the date of issue of RFP and filed ITRs for the last three FYs (i.e., FYs 2022-23, 2023-24 & 2024-25)	Audited Financial Statements for the last three financial years duly sealed & signed by a Chartered Accountant in practice, along with ITR for the said periods and the latest GST Return (GSTR-3B). Provisional Audit Report for any of the FYs will not be accepted.
4	Financial Capacity	Average annual turnover of the bidder or consortium in the last three Financial Years i.e., FY: 2022-23, 2023-24 & 2024-25 should not be less than ₹22 Crore	Audited financial statements/CA certified true copy stating the turnover. Financial Details of the bidder (TECH - 3) along with copies of last three FY's Audited Financial Statement duly sealed & signed by a Chartered Accountant in practice.

5	Net Worth	i) The Net worth of the Bidder as per the last published audited Balance Sheet, i.e., for FY 2024-25 should be positive. ii) also should not eroded by more than 30% (thirty per cent) in the last three years, ending on '31 st Mar'2026'.	A Certificate duly sealed & signed by a Chartered Accountant in practice with Registration Number
6	ISO Certificate	The Technology Partner/Channel Partner or the OEM company should have ISO certification.	Copy of valid ISO certificates of the agency/ the OEM must be submitted.
7	Past Experience Supply of equipment/machineries from similar sector	The bidder, during last 03 (Three) financial years must have the experience in Execution of work order involving supply of equipment/machineries of same sector with total order value of 9 crore (single or multiple order) in Govt. organization OR Execution of work order involving supply of equipment/machineries of same sector with total order value of 4 crore in Govt. organization(Single or multiple order) +11 crore (single or Multiple order) in Private organization.	Copies of Relevant Work Orders/Sanction Orders/ Contract or MOUs/MOAs containing value of the supplies/ Work Completion Certificate/ Successful Project Completion and Performance Certificate/Commissioning Certificates or equivalent documentary evidence from the client should be provided as proof (TECH-5)
8	Minimum Qualification of Trainers for hand holding Training	The agency must provide at least two (02) Qualified and Experienced Resource person for each CoE with minimum Graduate Engineer and minimum 2 years of industry experience or Diploma Engineer with 3 years of Industry experience in relevant field.	
9	Quality Certification	The bidder/vendor should have ISO/ISI Certification with every Machinery Test Certificate Mandatory as applicable.	Copy of valid ISO/ISI certificates along with Machinery Test Certificate as applicable.
10	Mandatory Documents	The bidder shall submit the Technical data in compliance with the minimum technical specifications mentioned in the tender document (ToR).	Submission of product wise brochure & catalogues and relevant pages from the website with available technical data in compliance with the minimum technical specifications mentioned in the ToR.
11	Blacklist	The Bidder shall not have been blacklisted by any Central / State Government Ministry in India or Public Sector Undertakings or any Government Agencies. Any Bidder that has been barred by the Central Government, any State Government, a statutory authority, or a Public Sector Undertaking from participating in any project and the bar subsists as on the date of the Proposal Due Date, would not be eligible to	Notarized Undertaking by the Authorized Signatory (TECH-6)

		submit a Proposal.	
12	Consortium/ Joint Venture	Consortium /Joint Venture allowed but with a condition that a OEM/Authorized Partner should be the lead partner and will be responsible for execution of contract. Maximum 03 (three) partners may be allowed in a JV. Sub-Contracting will not be allowed.	Submission of a consortium agreement, power of attorney for the lead partner, proof of legal status for each member (like registration or partnership deeds), and a GST registration certificate for the lead member. (TECH -7)
13	Authorized Representative	A Power of Attorney in the name of the person signing the proposal.	Original Power of Attorney (Notarized on a Rs.100/- Non-Judicial Stamp Paper) (TECH-4)
14	No failure of performance	A Bidder including any Associate should, in the last 3 (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder, or Associate, as the case may be, nor has been expelled from any project or contract by any public entity nor have had any contract terminated by any public entity for breach by such Bidder, or Associate.	The Director, DTE&T would place sole reliance on the certification provided by the Bidder in this regard in its Cover Letter. Any misrepresentation or concealment of any information in this regard shall render the Bid liable for outright rejection at the sole discretion of the Director, DTE&T.
15	Bid Processing Fee (Non- Refundable)	The Bidder shall furnish a Tender Fee of Non-refundable amount of Rs. 10,000/- + Rs. 1800/- (GST @18 %) = Rs. 11,800 (Rupees Eleven Thousand Eight Hundred Only).	Payment should be done through online mode
16	Earnest Money Deposit (EMD) (Refundable)	The Bidder shall furnish EMD amount of INR 50,00,000/- valid for minimum 225 days from last date of submission of bid.	Payment should be done through online mode

4.2 Documents to be submitted along with TECHNICAL BID (PART-A):

The bidder must furnish the following documents duly signed in along with their Technical Proposal:

- Filled in Bid Submission Check List in Original (Annexure-I)
- Covering letter (TECH – 1) on bidder's letterhead requesting to participate in the selection process
- Bid Processing Fee & EMD as applicable
- Copy of Certificate of Incorporation/ Registration
- Copy of PAN
- Copy of Goods and Services Tax Identification Number (GSTIN)
- Copies of IT Return for the last three financial years i.e., FY:2022-23, 2023-24 & 2024-25 and the copy of latest GST Return (in GSTR-3B)
- General Details of the Bidder (TECH – 2)

- Financial Details of the bidder (TECH – 3) along with all the supportive documents such as Balance Sheet and Income/ Expenditure Statement duly signed as per the instruction.
- Power of Attorney (TECH – 4) in favour of the person signing the bid on behalf of the bidder or Board of Directors
- List of setting-up of CoEs/supply of equipment/machines from same sector (Past Experience Details, (TECH – 5) along with copies of contracts / work orders / completion certificate from previous Clients (as provided in the RFP).
- Notarized Undertaking from the Bidder on not blacklisted (TECH - 6)
- Consortium Agreement (if Consortium/JV) (TECH-7)
- Technical Compliance Sheet (Requirements and specifications as per the ToR) (Tech-8)
- Manufacturing License or the Manufacturer's Authorization Form (TECH-9)
- Declaration regarding "Restrictions on procurement from a Bidder of a country which shares a land border with India" (TECH - 10)
- Bidder's Affidavit for Micro and Small Manufacturing Enterprises to get an exemption as per the Odisha Procurement Preference Policy (TECH - 11).
- Net worth Certificate duly sealed & signed by a Chartered Accountant.
- Copy of valid ISO/ISI certificates along with Machinery Test Certificate as applicable.
- Submission of product wise brochure & catalogues and relevant information on products supplies
- Certification in its Cover Letter by the Bidder regarding non-failure to perform on any contract

Note:

Bidders should submit the required supporting documents as mentioned above. Bids not conforming to the eligibility criteria and non-submission of required documents as listed above will lead to rejection of the bid. Submission of forged documents will also result in rejection of the bid. Bidders are advised to study all instructions, forms, terms & conditions, and other important information as mentioned in the RFP document. The proposal must be completed in all respect, indexed. Each page should be numbered and signed by the authorized representative. Client at its own discretion reserves the right to ask for clarifications/supporting documents at any time during evaluation.

4.3 In case of Joint Venture/Consortium

***Joint Venture (JV)/Consortium**

Three Companies/Agencies may jointly undertake contract(s). Each entity will be jointly and severally responsible for completing the task as per the contract.

Joint Venture/Consortium details:

Name of all Members of a JV/Consortium (not more than 3):

1. Lead Member (minimum participation share – 50%)
2. Other Members (minimum participation share – 20%)

Joint Venture/Consortium must comply the following requirements:

- I. The qualifying criteria parameter e.g. past experience, financial capacity/turnover (of the relevant period) and other eligibility of the individual member of the JV/Consortium will be added together and the total criteria should not be less than as spelt out in qualifying/ Experience and Eligibility criteria as specified in e-tender Notice/ Bid document/ Experience and Eligibility Criteria.
- II. In case the Bidder is a Joint Venture, the work experience of any one, or two of the individual Partners of JV or the JV itself may be furnished as the work experience of the Bidder.
Work Order, BOQ, TDS etc. may be sought during clarification or along with deficient documents, if felt necessary by the Tender Committee.
- III. The formation of JV/Consortium or change in the JV/Consortium character/ members after submission of the bid and any change in the bidding regarding JV/Consortium will not be permitted.
- IV. The bid, and in case of a successful bid - the agreement, shall be signed so as to legally bind all members jointly and severally and any bid shall be submitted with a copy of the JV/Consortium Agreement providing the joint and several liabilities with respect to the contract.
- V. The bid submission must include documentary evidence to the relationship between JV/Consortium members in the form of JV/Consortium Agreement to legally bind all partners jointly and severally for the proposed agreement which should set out the principles for the constitution, operation, responsibilities regarding work and financial arrangements, participation (percentage share in the total) and liabilities (joint and several) in respect of each and all of the firms in the JV/Consortium. Such JV/Consortium Agreement must evidence the commitment of the parties to bid for the facilities applied for (if pre-qualified) and to execute the contract for the facilities if their bid is successful.
- VI. One of the members shall be nominated as 'In-charge' of the contract and shall be designated as Lead Partner. This authorization shall be evidenced by submitting with the bid a Power of Attorney signed by legally authorized signatories of all the members.
All the partners of a JV/Consortium may together authorize the Lead Partner to submit the bid on behalf of the JV/Consortium, along with an undertaking that in case of a successful bid. the work shall be executed by the JV/Consortium as per contract terms of the bid document.
Note: This authorization must be a part of the JV/consortium agreement if the Bid is submitted by the lead partner on behalf of the JV/Consortium.
- VII. The JV/Consortium must provide that the Lead Member shall be authorized to incur liabilities and receive instructions for and on behalf of any and all members of the JV /Consortium and the entire execution of the contract shall be done with active participation of the Lead Member.
- VIII. The contract agreement should be signed by each JV/Consortium members. Subsequent declarations/letters/documents shall be signed by lead member authorized to sign on behalf of the JV/Consortium or authorized signatory on behalf of JV /Consortium.

- IX. The bid should be signed by the person submitting the bid, duly authorized by all the members of the JV /Consortium.
- X. An entity can be a member of only one JV /Consortium. Bid submitted by JVs /Consortium /Lead Partner, consisting of the common entities as member will be rejected.
- XI. The JV /Consortium agreement may specify the share of each individual member for the purpose of execution of this contract. This is required only for the sole purpose of apportioning the value of the contract to that extent to individual member for subsequent submission in other bids if he intends to do so for the purpose of the qualification in that Bid.
- XII. The earnest money / bids security can be submitted by the Joint Venture /Consortium or one or more partners of the Joint Venture /Consortium.
- XIII. The JV /Consortium agreement must specifically state that it is valid for the project for which bidding is done. If JV/Consortium breaks up midway before award of work and during bid validity period bid will be rejected.
- If JV /Consortium breaks up midway before award of work and during bid validity/after award of work/during pendency of contract, in addition to normal penalties as per provision of bid document, all the members of the JV /Consortium shall be debarred from participating in future bids for a minimum period of 24 months.
- XIV. JV /Consortium agreement shall be registered in accordance with law so as to be legally valid and binding on the members before making any payment.
- Note: If the work is awarded to a JV /Consortium firm, they will register the JV /Consortium agreement under Registration Act in accordance with law
- XV. JV/Consortium shall open a bank account in the name of JV/Consortium and all payments due to the JV/Consortium shall be credited by purchaser to that account only. To facilitate statutory deductions all statutory documents like PAN, GST registration etc. shall be submitted by JV/Consortium at the time of execution of Agreement.
- XVI. In case of JV /Consortium, PAN card for each partner of JV /Consortium must be submitted.
- XVII. In case of Joint Venture/Consortium, the Bidder should submit Scanned Copy of GST status of Lead Partner of the Joint Venture/Consortium.
- XVIII. Scanned copy of JV /Consortium Agreement as per **TECH-7** of General Terms and Conditions/SLA, containing name of partners and lead partner, Power of Attorney to the lead partner and share of each partner.
- XIX. Power of Attorney of the respective partners from the Board of Directors of the concerned Company, or from the partners of the entity, or from the proprietor, authorizing the signatory of JV /Consortium agreement on behalf of them;
- XX. The document(s) (any of them as applicable) regarding legal status of all the individual partners of JV /Consortium mentioned below:
- a) Affidavit or any other document to prove proprietorship/Individual status of the Bidder,
OR
- b) Partnership deed containing name of partners.
OR

- c) Memorandum & Article of Association with certificate of incorporation containing name of Bidder.

1. Bid Processing Fee (Non-Refundable):

The bidder must furnish as part of technical Bid, the required bid processing fee amounting to **Rs. 10,000/- + Rs. 1800 (GST @18 %) = Rs. 11,800** (Rupees Eleven Thousand Eight Hundred) through Payment should be done through online mode. Proof of submission must be attached with the technical bid. Bids received without bid processing fee will be rejected.

2. Earnest Money Deposit (EMD):

The bidder must furnish, as part of the technical Bid, an Earnest Money Deposit (EMD) amounting equal to **INR 50,00,000/-** Payment should be done through online mode and valid for minimum 225 days from the last date of submission of bids. Bids received without EMD will be rejected. Proof of submission must be attached with the technical bid.

The EMD amount is interest free and would be refunded through online mode after finalization of selection process and award of contract. The EMD, for the amount mentioned above, of the successful Bidder would be returned only after furnishing the required Performance Security and signing of the contract. The EMD will be forfeited on account of the following reasons:

- A Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as envisaged under this RFP (including the standard form of Work Order); or,
- If any Bidder withdraws its Proposal during the Bid Validity Period as specified in this RFP and as extended by the Bidder from time to time; or,
- In the case of the Selected Bidder, if the Selected Bidder fails to accept the Work Order or execute the Contract or fails to furnish the Performance Security within the specified time limit; or,
- If the Bidder commits any breach of terms of this RFP or is found to have made a false, representation to the client.

3. Performance Security:

- a. The successful bidder, within 15 days after the receipt of notification of award of the Contract (LoA) from DTE&T, shall furnish Contract Performance Guarantee to the DTE&T, Odisha which shall be equivalent to 5% of Total Bid Value (excluding taxes) and shall be in the form of a Bank Guarantee /e-Bank Guarantee from any of the commercial banks in India in the Performa given here-in-after in this document valid initially 68 months and may be extended beyond three years of completion of warranty period from the date of award of Contract as specified in the document.
- b. The proceeds of the performance guarantees shall be payable to the DTE&T, Odisha as compensation for any loss/ penalties resulting from the Selected Bidders failure to complete its obligations under the Contract.
- c. The performance guarantee will be released by DTE&T, Odisha and returned to the Selected Bidder after 60 days of completion of warranty period subject to fulfillment of all obligations on recommendation of respective Principal.

4. Proposal Validity:

Proposal shall remain valid for a period of **180 (One Hundred Eighty) days** from the date of opening of the technical proposal. The Client reserves the right to reject a proposal valid for a shorter period as non-responsive and will make the best efforts to finalize the selection process and award of

the contract within the bid validity period. The bid validity period may be extended on mutual consent. If agreed upon, the bid security so deposited shall also be suitably extended.

5. Pre- Proposal Queries:

The Bidder may seek clarification on any part of this RFP up to five (5) days from the date of issuance of the tender. Queries shall be submitted through email to dtetodisha.procurement@gmail.com, as specified in the Bidder Data Sheet. Bidders may submit their queries relating to the RFP and any other relevant details to DTE&T in the format prescribed below.

Sl	Section/Page No and RFP Clause reference.	Content of RFP requiring clarifications	Queries/ Change/Clarification requested

The client will address the queries submitted by the bidders.

- The Client's responses to Bidder queries (if any) will be made available to all Bidders and shall be uploaded on the Client's website. It shall be the Bidder's responsibility to check the Client's website for the responses to the queries or requests for clarification.
- Any such corrigendum shall be deemed to be incorporated into this RFP and binding on all Bidders.

6. Submission of Proposals:

The bid should be submitted through Online mode only in www.tendersodisha.gov.in.

The tender is to be submitted electronically in two separate Cover No.1 (Technical Cover) and Cover No. 2 (Financial Cover) and contents as indicated below:

Cover No.1 (Technical Cover)

The bidder must furnish the following documents duly signed in along with their Technical Proposal:

- Filled in Bid Submission Check List in Original (Annexure-I)
- Covering letter (TECH – 1) on bidder's letterhead requesting to participate in the selection process
- Bid Processing Fee & EMD as applicable
- Copy of Certificate of Incorporation/ Registration
- Copy of PAN
- Copy of Goods and Services Tax Identification Number (GSTIN)
- Copies of IT Return for the last three financial years i.e., FY:2022-23, 2023-24 & 2024-25 and the copy of latest GST Return (in GSTR-3B)
- General Details of the Bidder (TECH – 2)
- Financial Details of the bidder (TECH – 3) along with all the supportive documents such as Balance Sheet and Income/ Expenditure Statement duly signed as per the instruction.
- Power of Attorney (TECH – 4) in favour of the person signing the bid on behalf of the bidder or Board of Directors
- List of setting-up of CoEs/supply of equipment/machines from same sector (Past Experience Details, (TECH – 5) along with copies of contracts / work orders / completion certificate from previous Clients (as provided in the RFP).
- Notarized Undertaking from the Bidder on not blacklisted(TECH - 6)
- Consortium Agreement (if Consortium/JV) (TECH-7)
- Technical Compliance Sheet (Requirements and specifications as per the ToR) (Tech-8)
- Manufacturing License or the Manufacturer's Authorization Form (TECH-9)

- Declaration regarding “Restrictions on procurement from a Bidder of a country which shares a land border with India” (TECH - 10)
- Bidder’s Affidavit for Micro and Small Manufacturing Enterprises to get an exemption as per the Odisha Procurement Preference Policy (TECH - 11).
- Net worth Certificate duly sealed & signed by a Chartered Accountant.
- Copy of valid ISO/ISI certificates along with Machinery Test Certificate as applicable.
- Submission of product wise brochure & catalogues and relevant information on products supplies
- Certification in its Cover Letter by the Bidder regarding non-failure to perform on any contract.

In Case of Joint Venture/Consortium, the above mentioned documents (Point No.4.3) must be submitted along with technical proposal.

Cover No.2 (Financial Cover)

Price Bid. (Cover -2 in BoQ Ms-Excel format.)

The following supporting documents to be attached (in PDF format) with the seal & signature of the signing authority along with the Price Bid (BoQ Ms-Excel format) within the Cover-2.

1. FIN-1: Financial Bid covering letter.
2. Annexure: Equipment wise cost breakup

The offer must be submitted in Two Bid - Two covers only though uploading in the eProcurement Portal, before the last date & time for bid submission.

Tender document (s) and all enclosures must contain the signature of the competent authority of the firm.

7. Evaluation of Proposals

A Three stage evaluation process will be conducted as explained below for evaluation of the proposals:

A. Preliminary Evaluation (1st Stage):

Preliminary evaluation of the proposals will be done to determine whether the proposal complies with the prescribed eligibility condition and the requisite documents / information have been properly furnished by the bidder or not. Submission of documents/ information as per Pre-Qualification/Eligibility Criteria will be verified.

The bidder is required to produce the copies of the required supportive documents/information as part of their technical proposal failing which the proposals will be rejected.

B. Technical Evaluation (2nd Stage):

Technical proposal will be opened and evaluated for those bidders who qualify the preliminary evaluation stage. Detailed evaluation process as per the following parameters will be adopted for proposal evaluation:

Sl. No.	Criteria	Maximum Mark	Documents Required
1	Financial Capacity & Experience	30 Marks	
1.1	Turnover: The Bidder should have an Average annual turnover of Rs. 22 Crore in the last three financial years (i.e., FY: 2022-23, 2023-24 & 2024-25).	10	Financial details of the Bidders in TECH-3 duly signed by the CA

	Scoring Criteria: - Greater than or equal to Rs.22 Crore and less than Rs.30 crore : 05 Marks - Greater than Rs.30 Crore: 10 Marks		
1.2	Past Experience: The bidder, during last 03 (Three) financial years must have experience in Setting-up of Centre of Excellences (CoEs) in any Government or Private organization/ Government or Private educational institute/ Government or Private training institute/ any Industry same sector or execution of work order involving supply of equipment/ machineries of same sector with order value as follows. Scoring Criteria: - For individual work order value of Rs.4 Crore or more: 10 Marks will be given. - For individual work order value more than Rs.2 Crore less than 4 crore : 05 Marks will be given. (Maximum up to 20 marks)	20	Copies of Relevant Work Orders/ Sanction Orders/ Contract, MOUs containing value of the work/ Work Completion Certificate/ Successful Project Completion and Performance Certificate/ Commissioning Certificates or equivalent documentary evidence from the client should be provided as proof (TECH-5)
2	Quality, Training & Placement	60 Marks	
2.1	Quality of proposed equipment/ machines: Quality of the proposed Equipment/ Machines with respect to the technical specifications offered by the bidder, subjected to adherence of technical specifications asked for	50	Technical Compliance Sheet (Tech-8) with Submission of product wise brochure & catalogues and relevant pages from the website with available technical data in compliance with the technical specifications mentioned in the tender document.
2.2	Experience in providing Training: Training Bidder during last financial years must have experience of imparting training at ITI or Technical Institution to the minimum trainees/Students: - Trained and certified to 50 – 100 students: 05 marks - trained and certified to more than 100 students: 10 marks	10	Documentary Evidence: Training: Draft agreements/ MoUs/ Work Orders with numbers/ completion certificates
3	Technical Presentation	10 Marks	
3.1	Technical PPT Presentation: - Understanding the scope of work – 02 Marks - Methodology and Implementation – 02 Marks - Response to questions - 02 Marks - Proposed Plan for Training and Certification of Trainees – 02 Marks	10	

	• Placement plan for certified trainees etc.- 02 Marks		
	Grand Total (1 + 2 + 3)	100	
• The minimum qualifying mark is: 70 • Bidder must score at least 70% to qualify for opening of Financial Bid. • The scores provided by the Technical Committee will be considered as final. • The Technical PPT presentation on Bidder's proposals includes description of products make, model & proposed specifications of items in their Technical Proposal, past experience, objective, proposed plan, approach and methodology etc.			

Selection of Bidder

All responsive Bids will be considered for further processing as below:

- a. Technical Evaluation Committee will prepare a list of responsive Bidders, who comply with all the Terms and Conditions of the Tender. All eligible bids will be considered for further evaluation by the Committee according to the evaluation process defined in this RFP document. The decision of the committee will be final and binding on all bidders and cannot be questioned at any stage of evaluation.
- b. DTE&T reserves the right to ask for a technical elaboration/clarification in the form of a technical presentation from the Bidder on the already submitted Technical Proposal at any point of time before opening the Financial Proposal by providing at least 3 days of advance notice.
- c. DTE&T, Odisha also reserves the right to seek confirmation/clarification from the issuing agency for the supporting documents submitted by the bidder. To assist in the examination, evaluation and comparison of the bids, and qualification of bidders, the committee may, at its discretion, ask any bidder for a clarification of its bid. The committee's request for clarification and the response shall be in writing through approved mode only and no other mode shall be entertained. Any clarification submitted by a bidder that is not in response to a request shall not be considered.
- d. If any bidder fails to provide the requested presentation/clarification/information within the stipulated date and time given by the DTE&T, Odisha, the bid shall be technically disqualified. The request for clarification and the response shall be in writing, without any alterations regarding the price or substance of the bid submitted.
- e. Further the scope of evaluation committee also covers taking any decision regarding the Tender document, execution/ implementation of the project including management period.
- f. A detailed evaluation of the bids shall be carried out by the Technical Evaluation Committee in order to determine whether the Bidders are competent enough and whether the technical aspects are substantially responsive to the requirements set forth in the RFP document. The bidders must submit the Make, Model, Features, and Technical Specifications along with the images of equipment for which they are submitting the bid. Bidders may propose better technical specifications which may fit for the labs.
- g. Bidders failing to comply with any of the above then the Bid will be summarily rejected. Bidders who score at least 70% marks in Technical Evaluation criteria set forth in this RFP document will be eligible for opening of their Financial Bid. If a bid does not meet minimum score, it will be deemed technically non-compliant and will not proceed to the financial evaluation.
- h. Bidders are requested to visit the respective proposed institute for setting-up the CoE and they need to project thru 3D view, how they are planning to setup the labs and place all equipment at CoE.

- i. The bidders are expected to provide following details along with their technical bids.
 - Detailed 3D design (in CAD format) of the CoE along with 3D view of the lab and specifications of proposed Civil, Electrical, Plumbing works, Furniture & Fittings etc.
 - Detailed Execution Plan
 - Human Resource Deployment Plan/ CV of proposed trainers.
 - Project Delivery Plan
 - Plan for Industry-Academia GAP analysis and preparation of industry relevant Course Curriculum.
 - Assessment and Certification Plan
 - Placement Plan
 - any suggestions (if any)
 - Other Requirements (if any)

C. Evaluation of Financial Proposal (3rd Stage)

The financial proposals shall be opened on the prescribed date in the presence of the bidder/bidder's representative who wishes to attend the meeting with proper letter of authorization. The name of the bidder along with the quoted financial price will be announced during the meeting.

1. The financial bids of bidders whose bids have been technically qualified (i.e., obtained minimum **70 marks** in Technical Evaluation) shall be opened by the Committee on the date and time specified in the RFP
2. Least Cost Selection (LCS) method will be followed during the Financial Evaluation and overall selection process.
3. Price Quoted without tax (as applicable) of the following will be considered together for Evaluation of the Financial Bid Evaluation.

I. Total Cost of the Project

II. Total Cost of Comprehensive Annual Maintenance Contract (CAMC) for 03 Years

4. The bidder with Lowest Quoted Price (L1) will be considered as Final Selected Bidder.
5. In case two or more bidders quoted the same prices, the Committee shall decide on the L1 bidder based on the following tie-breaking criteria:
 - i. The bidder's turnover for the financial year 2024-25 will be considered first.
 - ii. If the tie persists, the turnover for the financial year 2023-24 will be considered.
[If further tie-breaking is required, the turnover for the financial year 2022-23 will be considered.
 - iii. If the tie remains unresolved after considering the above financial years, the L1 bidder will be determined by a draw, which will take place in the presence of the concerned bidders. The Committee's decision on this matter should be final and binding.
6. If a tenderer submits a bid with what appears to be predatory pricing or an abnormally low bid, the Tender Evaluation Committee may request a written clarification from the bidder. The bidder will be asked to provide a detailed price analysis, price break up, or justification of the quoted price, considering the scope, schedule, risk allocation, and any other requirements outlined in the tender documents.
If, after reviewing the price analysis or justification, the bidder fails to provide adequate supporting documentation, evidence, or calculations to substantiate the quoted price, the Committee may, at its sole discretion, reject the bid.

8. Contract Negotiations:

Contract negotiation, if required will be held at a date, time and address as intimated to the selected bidder/s. The bidder will, as a pre-requisite for attendance at the negotiations, confirm availability of all the proposed staff or the assignment. Representative conducting negotiations on behalf of the bidder must have written authority to negotiate and conclude a contract.

9. Award of Contract:

- a. Being the lowest bidder (L1) is not the sole criterion for the award of the contract. The feasibility of the lowest quoted price will be assessed by the Committee, taking into consideration the relevant rules, terms and conditions outlined in the tender. The Committee's decision in this regard will be final and binding on all parties involved. Upon completion of the evaluation process, the contract will be awarded to the bidder who quoted the lowest price (L1) and complies with all applicable laws, regulations, and provisions stated in the tender.
- b. DTE&T shall inform those Bidders whose Proposals did not meet the requirement or were considered non-responsive, informing them that their Financial Proposals will not be opened after completing the selection process. DTE&T shall simultaneously notify those Bidders who technically qualify on the Technical Evaluation process, informing them of the date and time set for opening of the Financial Proposals.
- c. The Bidder's name, the Proposal Price, the total amount of each Proposal and other such details, will be announced and recorded by the DTE&T at the opening of Proposal.
- d. After acceptance of LoA (Letter of Award) of Contract, Performance Security has to be deposited as specified in this document for signing an Agreement with DTE&T.
- e. The selected Agency shall sign the Agreement within 21 (twenty-one) days from the issuance of LoA (Letter of Award) of Contract:
 - i. DTE&T will sign the Agreement with the successful Bidder for a period as mentioned in 'Duration of Contract' in the document.
 - ii. DTE&T may extend the Agreement for a time period beyond what has been specified in 'Duration of Contract' in the document.
 - iii. DTE&T will also have the right to provide extension/ increase in the scope of work as per the mutually agreed terms and conditions between both the parties.
- f. In case of unsatisfactory or rejection of equipment or performance of L1 bidder, only L2 bidder will be invited for negotiation to supply and fulfill the contract at L1 prices.

10. Payment Modalities:

Payment will be made to the selected company as per the schedule mentioned on achieving milestones/agreed work plan as per the Section-7 (Deliverables & Payment Schedule).

11. Duration of Contract and other timelines:

The contract shall be valid initially for a period of 66 months from the date of issuance of LOA and other timelines are detailed below.

- i. **Supply of equipment/machines:** 4 months from the date of signing the Contract.
- ii. **Installation & commissioning:** 2 months from the date of receiving site readiness confirmation from the Principal of respective Institute.
- iii. **Comprehensive Maintenance Warranty:** 60 months from the date of successful commissioning.

12. Conflict of Interest:

A Bidder shall not have a conflict of interest (the "Conflict of Interest") that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, the Authority shall be entitled to forfeit and appropriate the Bid Security, as mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Authority and not by way of penalty for, inter alia, the time, cost and effort of the Authority, including consideration of such Bidder's proposal (the "Damages"), without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the Agreement or otherwise. Without limiting the generality of the above, a Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if:

- The Bidder or its Associate and any other Bidder or its Associate thereof have common

- controlling shareholders or other ownership interests.
- A constituent of such Bidder is also a constituent of another Bidder; or
- Such Bidder or any Associate thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder or any Associate thereof or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder or any Associate thereof; or
- Such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or
- Such Bidder, or any Associate thereof has a relationship with another Bidder, or any Associate thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other's information about, or to influence the Bid of either or each other; or
- Such Bidder, or any Associate thereof has participated as a consultant to the Authority in the preparation of any documents, design or technical specifications of the Project.

13. Disclosure:

- a. Bidders have an obligation to disclose any actual or potential conflict of interest. Failure to do so may lead to disqualification of the bidder or termination of its contract.
- b. Bidders must disclose if they are or have been the subject of any proceedings (such as blacklisting) or other arrangements relating to bankruptcy, insolvency or the financial standing of the Bidder, including but not limited to appointment of any officer such as a receiver in relation to the Bidder's personal or business matters or an arrangement with creditors, or of any other similar proceedings.
- c. Bidders must disclose if they have been convicted of, or are the subject of any proceedings relating to:
 - Criminal offence or other serious offence punishable under the law of the land, or where they have been found by any regulator or professional body to have committed professional misconduct;
 - Corruption including the offer or receipt of an inducement of any kind in relation to obtaining any contract;
 - Failure to fulfill any obligations in any jurisdiction relating to the payment of taxes or social security contributions.

14. Anti-corruption Measure:

- Any effort by Bidder(s) to influence the Client in the evaluation and ranking of financial Bids, and recommendation for award of contract, will result in the rejection of the Bid.
- A recommendation for award of Contract shall be rejected if it is determined that the recommended bidder has directly, or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the contract in question. In such cases, the Client shall blacklist the bidder either indefinitely or for a stated period of time, disqualifying it from participating in any related bidding process for the said period.

15. Force Majeure

"Force Majeure" means an event which is beyond the reasonable control of a Party, and which makes a Party's performance of its obligations here under impossible or so impractical as reasonably to be considered impossible in the circumstances, and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are

within the power of the Party invoking Force Majeure to prevent), confiscation or any other action by government agencies.

Force Majeure shall not include: (i) any event which is caused by the negligence or intentional action of a Party or agent's employees thereof, nor (ii) any event which a diligent Party could reasonably have been expected to take into account or avoid or overcome in the carrying out of its obligations during the subsistence of this Agreement. Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

16. Language of Proposals:

The proposal and all related correspondence exchanged between the bidder and the Client shall be written in the English language. Supporting documents and printed literature that are part of the proposal may be in another language provided they are accompanied by an accurate translation of the relevant passages in English with self-certification for accuracy, in which case, for the purposes of interpretation of the Proposal, the translated version shall govern.

17. Cost of bidding:

The Bidder shall bear all costs associated with the preparation and submission of its proposal. The Client shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process. Bidder/s is/are not allowed to submit more than one proposal under the selection process. Alternate bids are also not allowed.

18. Legal Jurisdiction:

All legal disputes are subject to the jurisdiction of competent court of Kataka /Bhubaneswar only.

19. Governing Law and Penalty Clause:

The schedule given for delivery is to be strictly adhered to in view of the strict time schedule. Any unjustified and unacceptable delay in delivery shall render the bidder liable for liquidated damages and thereafter the Client holds the option for cancellation of the contract for pending activities and complete the same from any other Bidder. The Client may deduct such sum from any money from their hands due or become due to bidder. The payment or deduction of such sums shall not relieve the bidder from his obligations and liabilities under the contract. The rights and obligations of the Client and the bidder under this contract will be governed by the prevailing laws of Govt of India/ Odisha.

- i. Notwithstanding the right of DTE&T, Odisha to cancel the order, Delay Charges for late delivery at 0.5% (Half percent) of the undelivered portion of order value per week will be charged for every week's delay in the specified delivery schedule subject to a maximum of 5% of the value of the contract. Delay Charges should be recouped from pending payment or Performance Security as per the payment schedule. No Delay Charges will be charged in case of circumstances beyond control of the selected Bidder. The decision of the authority placing the contract, whether the delay in delivery has taken place on account of reasons attributed to the bidder shall be final.
- ii. Please note that the above Delay Charges for delay in delivery and delay in commissioning are independent of each other and shall be levied as the case maybe.
- iii. DTET, Odisha reserves its right to recover these amounts from Performance Guarantee and the payments due to the bidder as per the payment schedule. Delay Charges will be calculated on per week basis.
- iv. The cumulative and aggregate limit of Delay Charges for delay in delivery and Delay Charges for delay in commissioning would be limited to maximum of 5% of the total Bid Value. The aggregate liability of the selected Bidder shall in no event exceed the total Bid Value under this Contract.

- v. Delay charges shall also be applicable for delay in Comprehensive Warranty (CMC) during the warranty period i.e. 60 months from the date of successful commissioning. For every week's delay, 0.5% (Half percent) of order value (excluding taxes) will be charged for the specified CMC schedule mentioned in the Section-5 (Point No.V), subject to a maximum of 5% of the value of the contract.

20. Client's right to accept any Bid, and to reject any or all Bid/s

The Client reserves the right to accept or reject any Bid, and to annul or amend the bidding / selection / evaluation process and reject all Bids at any time prior to award of contract award, without assigning any reason there of and thereby incurring any liability to the bidders. Misrepresentation/improper response/ by the bidder may lead to the disqualification of the bid. If such disqualification/rejection occurs after the Bids have been opened and the highest-ranking bidder gets disqualified/rejected, then the client reserves the right to consider the next best bidder, or take any other measure as may be deemed fit in the sole discretion of the Client, including annulment of the selection Process.

21. Number of Bids:

Each Bidder shall submit only one (1) Bid, in response to this RFP. Any Bidder who submits or participates in more than one Bid shall be disqualified. The Bidder shall be responsible for all costs associated with the preparation of its Bid and its participation in the bidding process.

22. Amendment of the RFP Document:

At any time before submission of proposals, the Client may amend the RFP by issuing an addendum through Department website. Any such addendum will be binding on all the bidders. To give bidders reasonable time in which to take an addendum into account in preparing their proposals, the Client may, at its discretion, extend the deadline for the submission of the proposals.

23. Confidentiality:

Information relating to evaluation of proposals and recommendations concerning awards shall not be disclosed to the bidders who submitted the proposals or to other persons not officially concerned with the process, until the publication of the award of contract. The undue use by any Consultant of confidential information related to the process may result in rejection of its proposal and may be subject to the provisions of the Client's antifraud and corruption policy. During the execution of the assignment except with prior written consent of the Client, the consultant or its personnel shall not at any time communicate to any person or entity any confidential information acquired in the course of the contract.

24. Settlement of Dispute:

The Client and the Bidder shall make every effort to resolve amicably, by direct negotiation, any disagreement or dispute arising between them under or arising from or in connection with the contract. All claims and disputes arising under or relating to this Agreement are to be settled by binding arbitration in the state of Odisha. An award of arbitration may be confirmed in a court of competent jurisdiction. Arbitration shall be as per Indian Arbitration Act, 1996.

Disputes not so resolved amicably within 30 days of receipt of notice of such as a dispute shall be resolved by Commissioner –cum-Secretary to Government, SD&TE Department, Government of Odisha which is binding and final.

25. Disqualification of Proposal:

The proposal is liable to be disqualified in the following cases as listed below:

- Proposal submitted without Bid Processing Fee & EMD as applicable
- Proposal not submitted in accordance with the procedure and formats as prescribed in the RFP
- During validity of the proposal, or its extended period, if any, the bidder increases his quoted prices
- Proposal is received in incomplete form
- Proposal is received after due date and time for submission of bid
- Proposal is not accompanied by all the requisite documents / information
- A commercial bid submitted with assumptions or conditions
- Bids with any conditional technical and financial offer
- If the bidder provides any assumptions in the financial proposal or qualifies the commercial proposal with its own conditions, such proposals will be rejected even if the commercial value of such proposals is the lowest / best value
- Proposal is not properly sealed or signed
- Proposal is not conforming to the requirement of the scope of the work of the assignment.
- Bidder tries to influence the proposal evaluation process by unlawful/corrupt/fraudulent means at any point of time during the bid process
- If, any of the bid documents (including but not limited to the hard and soft/electronic copies of the same, presentations during evaluation, clarifications provided by the bidder), excluding the commercial bid, submitted by the bidder is found to contain any information on price, pricing policy, pricing mechanism or any information indicative of the commercial aspects of the bid;
- Bidders or any person acting on its behalf indulges in corrupt and fraudulent practices
- Any other condition / situation which holds the paramount interest of the Client during the overall section process.

26. Fraud and Corrupt Practices

The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process. Notwithstanding anything to the contrary contained herein, Director, DTE&T may reject a Bid without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, Director, DTE&T shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to Director, DTE&T under the Bidding Documents and/ or the Agreement, or otherwise.

Without prejudice to the rights of the Director, DTE&T herein above and the rights and remedies which Director, DTE&T may have under the RFP, or otherwise if a Bidder is found to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process such Bidder, at the sole and absolute discretion of Director, DTE&T, shall not be eligible to participate in any tender or RFP issued by Director, DTE&T during a period of 2 (two) years from the date such Bidder, is found to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be. The following terms shall have the meaning hereinafter respectively assigned to them.

5. SECTION III: Terms of Reference (ToR)

“RFP for establishment of CoE in Electric Vehicle Technology at Govt. ITIs of Odisha”.

I. Introduction:

The Directorate of Technical Education and Training, Odisha, having its principal office at Killa Maidan, Buxi Bazaar, Kataka-753001 (herein after referred to as the “DTE&T” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and permitted assigns), looks after technical education at Technical Institutes/Colleges, Diploma and formal CTS training at ITI level. It also provides Dual System Training, On-the-Job Training, Apprenticeship Training in order to prepare the Youth suitable for gainful wage and self-employment through Nano Unicorn Project of OSDA for a decent livelihood.

The goal of the DTE&T is to aims upgrade Government Industrial Training Institutes (ITIs) into advanced skill development hubs by establishing Centres of Excellence (CoEs) equipped with state-of-the-art, industry-integrated laboratories, smart classrooms, and technology-enabled learning facilities. These CoEs will act as anchor institutions for providing high-quality vocational training, future-ready skilling, and continuous faculty development.

Each CoE will serve not only its host ITI but also extend training, resources, and technical support to nearby ITIs, thereby fostering an ecosystem of excellence, and industry-readiness across the State.

DTE&T invites proposals from the leading OEM/Authorised Channel Partner/Authorised Technology Partner of OEM having experience of setting-up Centre of Excellences (CoEs) in similar sectors or supply, installation and commissioning of the similar advanced lab equipment.

II. Objective:

- To align training with emerging industry requirement and future technologies through industry partnerships for offering specialized courses in high-demand sectors.
- To upgrade ITIs with industry-standard equipment, advanced laboratories, and modern infrastructure to deliver training at par with global benchmarks.
- To strengthen faculty capacity in pedagogy, advanced technologies, and digital tools for ensuring quality learning outcomes.
- To enhance employability by providing soft skills, exposure to best practices, and industry-academia linkages through curriculum co-design, apprenticeships, and dual-training models.

These centers should be on Build, Operate and Transfer Mode. All the Hardware should be of industrial standards. The software should not be restricted to educational limits. Should be provided with industrial features allowing DTE&T to offer Industrial consultancy apart from the skill development.

DTE&T shall provide the lab infrastructure with required space with electrical power supply, water supply (if required), furniture and other pre-requisite amenities before supply of equipment. The role of the successful bidder shall be to design and set up the CoEs on turnkey basis. (including complete setup of CoEs, supply and installation of equipment/machineries, commissioning & maintenance, and provide hand-holding support for minimum 3 (three) years which may be extended further (if needed) with mutual agreement. The selected bidder will be responsible for Comprehensive Warranty for 60 months, and provide operational training (as per the requirement) to the nominated staff from the consignee institutes.

III. Scope of the Project

The mission of establishing Centre of Excellences are to promote advancement and implementation of automation concepts through Skill Development of students in state of Odisha along with self-sustainability of the institute through technology support services to the industries.

These CoEs, to be designed by the Technology Partner (TP), is envisioned to be setup as a State of the Art Centre of Excellences (CoEs) in which the TP brings in their best-in-class equipment/ tools/ machines/ software (commonly referred to as equipment) to be used for training purposes. These CoEs will be located in an appropriate space offered by the DTE&T. These CoEs will be managed professionally by the Technology Partner. The infrastructure for the CoE will be made ready by Technology partner as per the proposed design by them and the specifications finalized and provided by DTE&T Odisha.

These CoEs will run under the overall operational management of the CoE Management Committee. The CoE Management Committee, under the Guidance of the DTE&T Odisha, will be responsible for devising and implementing a three-year rolling plan and ensuring that these CoEs are constantly upgraded and provides a high technology ecosystem for skilling/ up- skilling/ re-skilling/ cross-skilling and multi-skilling. The Technology Partner, under the Guidance of the CoE Management Committee, will be expected to assist the DTE&T Odisha to mobilize students from other Private Technical Training Institutes/employees from the relevant industries for skilling, upskilling or re-skilling training, which will help to generate internal revenues (IRG) at these CoEs, and can help in the sustainability of these CoEs.

Overall monitoring, administrative, quality and financial responsibilities including the management of these CoEs, management of hostels etc. will be the responsibility of the DTE&T. But, marketing, branding, development of training course content, training plan, deployment of technical experts to provide training, assessments, award certificates to the successful trainees/trainers, provide placement to the successfully certified trainees etc. will be the responsibilities of the Technology Partner.

A- Scope of DTE&T (the Buyer/Client):

The scope of work of the DTE&T inter alia states that;

- I. DTE&T shall provide required space in the lab along with design/layout of the labs within the premises of the Govt. ITIs and Polytechnics/Engineering Schools.
- II. Facilitate additional space (covered area) if required upon availability at the institute premises at free of cost.
- III. Provide basic amenities like approach road and water supply (if required) nearest to the lab for running the machinery/equipment. Three phase electrical connection at nearest distribution/panel board will be provided at the designated labs by the consignee institutes.
- IV. Required space, furniture, air conditioners (if required) etc. will be provided by DTE&T Odisha.
- V. Conduct Pre-Delivery Inspection of sample equipment through Physical mode by its own technical experts or 3rd party agency/consultants/advisors appointed by DTE&T before the proposed equipment dispatch by the selected bidder and Post Delivery Inspection of all equipment by its own technical experts or by an independent agency appointed by DTE&T at any point of time. The operational expenses like testing the machines/equipment will be borne by the supplier.
- VI. Provide the requisite hostel facilities for the students/trainees to be trained from other Govt. ITIs/Polytechnics within the existing infrastructure of the institute.
- VII. CoEs, may train the passed-out trainees for nearby private ITIs & Polytechnics as a value addition course, on the fees as fixed by CoE Management Committee. CoE can generate revenue through fees deposited by the admitted trainees and provide skilling, upskilling/re-skilling training to the trainees from other private institutes.
- VIII. CoE may train the semi-skilled technicians of nearby industries on payment, as fixed by CoE Management Committee.
- IX. DTE&T Odisha and the consignee institutes will be responsible to monitor the performance of the Selected Bidders and progress of the work.

B- Scope of the Successful Bidder:

1. These CoEs, to be designed by the OEM/Technology Partner, is envisioned to be setup as a State of the Art Centre of Excellences (CoE) in which the selected company brings in their best-in-class equipment/ tools/ machines/ software (commonly referred to as equipment) to be used for training purpose.
2. Supply, installation and commissioning of all machines/equipment in compliance to the technical specifications mentioned in Section-6 of the RFP, will be done by the Selected Bidders to setup these CoEs at the consignee institutes.
3. Complete lab infrastructure readiness including necessary civil works for installation and commissioning of the equipment, electrical connections from nearest distribution panel board to the machines, plumbing (if required) and other works to setup these CoEs and installation of the equipment/machines at these CoEs, falls within the ambit of scope of work of selected bidder.
4. All necessary works including minor civil (i.e. earthing/grounding of the machines), electrical (i.e. all type of cables connections, circuit breakers etc. required for connecting power supply point to machine), plumbing and other works for the installation & commissioning of the equipment/machines at the designated labs, falls within the ambit of scope of work of selected bidder.
5. Required Room/space, Furniture, Air Conditioners, Water Supply etc. will be provided by DTE&T Odisha but Selected Bidder is expected to supply all other installation accessories, facilities and services required for successful installation and smooth operation of the equipment. Bidders may conduct the site survey before installation at no additional cost.
6. Any accessories that must be needed for operation of the equipment but not mentioned in the specification shall also be quoted by the selected bidder.
7. Suitable and essential tool kit is to be supplied by the selected bidder with the equipment for the required maintenance.
8. The equipment/machines should be installed and commissioned at site. Site requirement along with the layout drawing for installation of equipment, electrical & water supply if any from main/ nearest sources shall be provided by the selected bidder upon issuance of Letter of Award of Contract (LoA).
9. The bidder shall not charge extra for additional items including fuel & lubricants, Gas Cylinders (if required), raw materials, consumables etc. required to meet the operational requirement during installation, commissioning and hand-holding training at consignee institutes.
10. Arrangement of Fire safety equipment like Carbon Dioxide or Dry Chemical Fire Extinguishers or any superior fire safety equipment with sensors.
11. Provide necessary safety & training posters for these CoEs. Branding and Marketing of these CoEs, along with the Digital Hoarding Board and banner at each CoE.
12. The selected bidder shall provide comprehensive warranty of supplied machineries/equipment for 60 months from the date of successful commissioning. The warranty does not include tools & tackles, consumables, PPE etc (if any).
13. The selected bidder must sign an agreement for Comprehensive Annual Maintenance Contract (CAMC) with DTE&T Odisha for 03 (three) years for the all equipment/machines of these CoEs. This CAMC contract must be signed 02 (two) months before expiry of the comprehensive warranty period i.e. 60 months. A performance security @5% of the Annual awarded Value of Comprehensive Annual Maintenance Cost (CAMC) (without tax) for the respective year must be submitted by the selected bidder and the same will be initially valid for fifteen months and may be extended further, if necessary.

14. Handholding for 36 months from the date of successful commissioning. Handholding should include the following but not limited to

- I. The OEM/Technology Partner shall identify and formulate training programs to develop skills in futuristic/ disruptive technologies and associated skill sets required for industry ready.
- II. To develop courses, course content, course work, manuals, standard operating procedures and standards, disseminate the same with the overall intent of improving the skill sets of individuals.
- III. To impart high-end skills (and not generic skills) to Students, unemployed individuals and employed individuals (looking to up skill/ re-skill themselves).
- IV. To conduct train the trainers program for 01 (one) month of each batch and train the trainees' programs for 03 (three) months of each batch with a batch size of 20 students/trainees. Maximum 04 (four) batches of trainees may be trained in a year.
- V. To conduct need based/ on-request training programs to cater to specialized requirements of corporate, and to generate revenues through these programs.
- VI. To carry out assessment, certification of trainees as per the NSQF/NCVT prescribed guidelines.
- VII. Preparation of Training Modules for Train the Trainers and Trainees. Advanced skill training curriculum with minimum equivalent to NSQF level 5 or 6, in addition as per the demand of the industries should be included.
- VIII. Select appropriate courses; design the course structure, curriculum and pedagogy based on industry demand. Selected bidder shall identify and formulate training programs to develop skills in futuristic/disruptive technologies and associated skill sets required for industry ready.
- IX. The OEM/Technology Partner shall design courses, curriculum, and pedagogy based on industry demand for placing before the CoE Management Committee constituted by DTE&T and shall comply with the recommendations of CoE Management Committee and the same should be incorporated in the curriculum prior to the course commencement.
- X. Conduct training that meets industry standards by engaging appropriate faculties (qualified & experienced), facilities and technology like virtual classroom.
- XI. Providing Soft Copies or Hard Copies of Training materials for at least 01 (one) batch with minimum 20 trainees during hand-holding training of the Trainers and Trainees.
- XII. The company has to ensure that the assessment is completed as per the standards in a fixed time frame and shall issue joint certificate to the passed-out students with the help from Principal of designated institute or any valid certificate from international bodies.
- XIII. The selected bidder shall furnish the proposal with details of courses, course content, course, work, manuals, pedagogy, standard operating procedures and standards, disseminate the same with the overall intent of improving the skill sets of individuals.
- XIV. Provide necessary Raw Materials & Consumables (if any) during hand-holding period.
- XV. Selected OEM/Technology Partner shall provide Placement Support to the successfully trained and certified students. Placement opportunities to be given at least 50% of the successfully trained/certified trainees within maximum 01 (one) Year from their successfully certification. Overall Placement Assistance to be given for the trainees trained within the 03 (three) Years from the start date of hand-holding training.

C- Specifications of Civil & Electrical Works:

Design of CoEs including interior design with fire retardant, plastic coating painting, design of shop floor/labs with anti-skid, electrical insulating, fire retardant with epoxy flooring (with minimum 3mm thickness), required electrical, civil and plumbing works and furnishing of the labs etc. Selected

Bidder shall mutually finalize the design and drawing of the labs and specifications of the Civil and other works with DTE&T Odisha. DTE&T Odisha will monitor the entire CoE setup centrally.

D- Pre-Delivery Inspection and Post-Delivery Inspection of all equipment:

DTE&T may conduct a Pre-Delivery inspection of all equipment/sample equipment through Physical mode by its own technical experts or 3rd party agency/consultants/advisors appointed by DTE&T before the dispatch of the proposed equipment by the selected bidder at the supplier's premises or at the manufacturer's factory site. The operational charges i.e. testing charges for samples, raw material, consumables (if any) etc. shall be borne by the supplier. But, other expenses like travelling, boarding and lodging of the technical experts, will be borne by the Authority.

All tests and inspections of all equipment during Post-Delivery Inspection shall be made at the place of delivery. Officers authorized by DTE&T shall be entitled at all reasonable time to inspect and supervise and test during installation and commissioning. Such inspection will not relieve the selected Bidder of their obligation in the contract.

If the OEM/Technology Partner fails to comply with any of the quality, technical specification or clause mentioned in the RFP, and then the Contract will be terminated by DTE&T Odisha.

E- Management of CoEs:

I. The CoE Management Committee will be consisting of representatives from selected bidder company, DTE&T, representatives from industries, DSDE officer, and Principal of the institute as member convener.

II. DTE&T Odisha shall be sole authority to oversee all the training and administrative activities in the best interest of the State of Odisha.

III. Company/firm shall support placement of trainees with the help of the particular Industry of each skill.

IV. CoE Management Committee will be constituted by DTE&T for the overall guidance and the role of the committee will generally be limited to:

- a) Review the periodic updating of syllabus, curriculum and course content ii). Review adequacy of courses offered viz - a - viz industry demand and suggest addition/ modification or discontinuation of courses and fixation of fees.
- b) Periodic performance and placement evaluation against pre - defined milestones detailed under RFP document to be published.
- c) Review, and if necessary, engage third party to evaluate the quality of equipment and training.
- d) It will fix the eligibility criteria for admission/reservations etc. and mobilize students/industry employees from nearby cluster for admission.

IV. Special Terms and Conditions:

1. Manufacturer (OEM) / Authorized Channel Partner/ Authorized Technology Partner having valid manufacturing license of OEM/ authorization certificates from OEM are eligible to participate in this tender. OEM must provide necessary documentary evidence of being an Original Equipment Manufacturer of the related equipment. Bid specific authorisation must be submitted in case of participation by channel partner/technology partner of OEM.
2. OEM should be nationally / internationally reputed Company.
3. For Technology Partner/Channel Partner, an undertaking from the OEM is required stating that they would facilitate the Bidder on a regular basis with technology/product updates and extend support for the warranty as well.
4. In this tender, either the authorized channel partner/technology partner on behalf of the OEM or OEM itself can submit bid proposals, but both cannot submit bids simultaneously for the same CoE.
5. If authorized channel partner/technology partner submits bid on behalf of the OEM, the same authorized channel partner/technology partner shall not submit a bid on behalf of another OEM for the same CoE.
6. In a scenario, if both OEM and or its channel partner/authorized dealer participated in the bidding process, bids of both OEM & an authorized partner/dealer will be technically disqualified and EMD will be forfeited as per prevailing rules. The authorization from OEM should indicate bid reference number.
7. The supplier of the equipment must confirm in writing that the spares for the entire supplied equipment will be available for a period of at least five years after the model of equipment supplied has been phased out. For frequently required spares, there should be adequate inventory with the Indian agency.
8. The successful bidder is responsible for the supply, installation and maintenance of the equipment. Equipment documentation including user manuals and operation and troubleshooting guides to be provided.
9. Comprehensive Warranty period shall specifically be mentioned in the offer. The selected bidder must adhere to the warranty clause mentioned herein.
10. Selected Bidder must sign Comprehensive Annual Maintenance Contract (CAMC) with DTE&T Odisha for at least 03 (three) years for the equipment/machines mentioned here in this RFP.
11. Financial Proposal must be submitted as per the BoQ MS-Excl format along with formats shared in FIN-1 & Annexure (PDF file).
12. Bidders must submit Technical Specification Compliance sheet within their technical bid. The bidders must be kept in their mind that mere copying of our specifications in the technical specification compliance sheets, shall not make the technical bid eligible for consideration. A bid has to be supported with original catalogue of the quoted item/s duly signed by the authorized person participating in the bid. Non-compliance with the above conditions shall be treated as incomplete/ambiguous and the bid shall be rejected without giving an opportunity to the bidder for further clarification/negotiation etc.
13. The bidder must produce documentary evidence of past supply experience of the offered make & model of the major equipment/machineries to any Govt./Private organization/industry.

14. Details of foundation drawing for instruments and equipment, if any, should be provided.
15. The Bidder shall quote their lowest possible price, and prices quoted by the Bidder shall be “fixed” during the Bidder’s performance of the contract and not subject to any variation and/or escalation.
16. Bidder must quote **Cost of the Project**, which shall indicate clearly the including all taxes and charges towards packing, forwarding, handling, insurance, comprehensive warranty for 60 months, freight, incidental service, civil, electrical and other works, (if any), installation & commissioning of the goods and training to the consignee’s personnel at site and **Cost of Comprehensive Annual Maintenance Cost (CAMC) in BoQ MS-Excel Format and FIN-1 (PDF File)**, indicating the total cost of Comprehensive Annual Maintenance Cost for the equipment/machines offered for these CoEs’ for 03 Years and applicable after the expiry of comprehensive warranty of 60 months. The price shall be quoted in Indian Rupees only.
17. The cost of standard accessories shall be included in basic price and optional accessories shall have to be quoted separately.
18. Any component, fitting etc. which may not have been specifically mentioned in the specifications but which are usual and necessary for the equipment, shall be supplied by the bidder at no extra cost.
19. In case of items of import, the bidder should take full responsibility for customs clearance, handling, tax payment, etc. and same should be inclusive in the financial bid.
20. DTE&T Odisha shall sign a **Comprehensive Annual Maintenance Contract (CAMC)** for 03 (three) years (which may be extended further as per the requirement of DTE&T Odisha) for the equipment/machines mentioned in ‘Point No. 6’ of the RFP, with the Selected Bidder beyond the warranty period of 60 months and shall be as per the terms and conditions mentioned in Annexure-III. Year wise cost of such maintenance contract (CAMC) shall be quoted.
21. **Higher technical specifications may be considered subject to competitive price offer.**
22. DTE&T Odisha reserves the right to accept, split, divide, negotiate, cancel or reject any bid or to annul and reject all bids at any time prior to the award of the contract without incurring any liability to the affected bidders or any obligation to inform affected bidder, the grounds of such action.
23. Price bid should be submitted in the BoQ MS-Excel Format and given format in **FIN-1** along with item wise rate in **Annexure** (PDF File). Price bid should have equipment wise breakup (Annexure).
24. Performance Security – A performance security in the form of Bank Guarantee/e-Bank Guarantee for 5% of the Awarded Value (excluding taxes) to be submitted within 15 days of issuance of the Letter of Award (LoA). The Bank Guarantee will be valid initially for 68 months and may be extended further if required. The performance guarantee will be released by DTE&T, Odisha and returned to the Selected Bidder after 60 days of completion of warranty period subject to fulfillment of all obligations on recommendation of respective Principal of the institutes.

V. Comprehensive Warranty (60 Months) Clause:

The final selected bidder must provide Comprehensive Warranty Maintenance Services for all supplied equipment/machines (except consumables, PPE and tools & tackles) at the CoEs for 60 months from the date of successful installation & commissioning. The scope of the bidders is as below.

- i. Maintenance Services shall consist of Preventive and Corrective maintenance of equipment specified in Point No. 6 (excluding consumables, PPE and tools & tackles) & will include repair and replacement of parts free of cost.
- ii. Preventive maintenance, half-yearly once, which includes:
 - i. Check-up to ensure that device connection is proper; cabling is at proper condition etc.
 - ii. Cleaning of the above instruments & equipments and checking the System Performance.
- iii. The selected bidder must conduct preventive maintenance services at least twice (2 times) in a year at each CoE.
- iv. The parts replaced must be new parts or equivalent in performance to new parts.
- v. Any complaint informed through telephone/email must be acknowledged with a Complaint No. by the Supplier which will be noted by Consignee. All further contact with the Supplier on such complaint will be initiated through that Complaint No. Once rectification done, that No. will be cancelled by both parties. A register is to be maintained by the Supplier where complaints are to be noted along with Complaint No.
- vi. The maintenance shall be attended by the service engineer within one week of intimation to the Bidder.
- vii. The Service Engineer of the Supplier will be allowed to handle the respective plant & machineries only in the presence of the officer in charge at the institute site.
- viii. The selected bidder should ensure that maintenance job is not hampered/ delayed due to paucity of spares/inadequate manpower etc.
- ix. Minor repair to be done within 3 days of complaint registered and for major breakdown or replacement of parts must be completed by 15 days from the complaint registered to supplier. For imported parts, the replacement should be done within 4 weeks maximum.

VI. Comprehensive Annual Maintenance Contract (CAMC):

- i. The Selected Bidder shall be under the obligation of entering into a Comprehensive Annual Maintenance Contract (CAMC) with DTE&T Odisha for a minimum period of 03 (three) years, renewable if felt necessary, on mutually acceptable rates, terms, and conditions mentioned herein. CAMC shall start after the completion of Warranty.
- ii. The scope of CAMC shall cover maintenance and supply/replacement of materials and components, for smooth and reliable operation of the systems without trouble.
- iii. Accordingly, the Bidders has to offer rates in BoQ MS-Excel Format and given **FIN-1 (PDF File)**, for the CAMC charges for the CoE.
- iv. Selected agency must sign the Comprehensive Annual Maintenance Contract (CAMC) with DTE&T Odisha for 03 (three) years for the equipment/machines supplied at the CoE (except tools, tackles, raw materials, PPE etc.). This CAMC contract must be signed before expiry of the comprehensive warranty period i.e. 60 months. A performance security @5% of the Annual cost of CAMC (excluding Taxes) in the form of Bank Guarantee/Fixed Deposit Receipt/Term Deposit Receipt, must be submitted by the selected Agency before signing the CAMC contract for the respective lot and which will be initially valid for 15 months and may be extended further if

necessary.

- v. The Performance security towards CAMC for the particular year shall be returned only after submission and confirmation of BG/TDR/FD/DD of subsequent years.

6. List of equipment/machines and their Technical Specifications /Compliance Statement:

Proposed Government ITIs/Consignee Institutes:

1. Govt. ITI Gumma
2. Govt. ITI Jajpur
3. Govt. ITI Raigada, Gajapati
4. Govt. ITI Dhenkanal
5. Govt. ITI Kantabanji
6. Govt. ITI Laxmipur, Koraput
7. Govt. ITI Matheli, Malkangiri
8. Govt. ITI Rayagada
9. Govt. ITI Umerkote, Nabarangpur

List of Equipment for the CoE in Electric Vehicle Technology at Govt. ITIs of Odisha.

EV Powertrain/Drivetrain Training & Research Setup [Technology Division-1]	
Items Name &Description	Qt.
1.) 4-Wheeler EV Motor Drivetrain Training & Research Setup LIVE Experimental Setup with Data Acquisition, Data Logging, and Variable Loading Facility with Programmable Controller Overview An advanced Electric Vehicle Powertrain Test Bench designed to simulate and analyse the performance of four-wheeler EV drivetrains under real-time variable load conditions. This setup provides hands-on training, research, and testing capability for PMSM/AC motor systems used in commercial 4W electric vehicles (e.g., TATA, MG, Mahindra). The system includes IoT-enabled data acquisition, software-based control, and comprehensive safety features. System Composition The setup shall include: • PMSM/AC traction motor (liquid-cooled, CAN enabled) • Regenerative programmable motor controller • Electrical regenerative loading dynamometer • EV-grade liquid-cooled battery pack with BMS • Control and instrumentation panel • Data acquisition & IoT software suite • Computer system with analysis dashboard	01

Parameter	Specification
Motor Type	PMSM / AC Motor (Liquid/Air Cooled)
Rated Power	15 kW (Continuous)
Peak Power	30 kW or higher
Rated Torque	75 Nm
Maximum Torque	150 Nm
Rated Speed	3000 RPM
Voltage Range	72–120 V DC
Efficiency	$\geq 93\%$
Ingress Protection	IP65 or higher
Temperature Sensor	Integrated PT1000 / NTC Sensor
Communication	CAN 2.0B / UART / RS485
Controller Type	Vector-controlled, regenerative, and re-programmable
Control Features	Torque, Speed & Position Control with FOC (Field Oriented Control)
Advanced Functions	Automatic tuning, regenerative braking, space vector modulation (SVM), and IoT-based monitoring
Dynamometer (Loading System)	
Parameter	Specification
Type	Regenerative AC / PMSM Motor-based Loading System / Mechanical Loading System
Rated Power	As per System Requirement (Flexible)
Torque Measurement	High-accuracy load cell with real-time digital display
Control	Variable load via programmable controller and software interface
Direction of Rotation	Bi-directional operation
Battery Pack & Charging System	
Parameter	Specification
Type	Lithium-ion (NMC/LFP) EV-standard pack
Capacity	10–15 kWh
Cooling	Liquid cooled
Integrated BMS	With temperature, voltage, and current monitoring
Communication	CAN enabled

Battery Charger

Smart, 30A charger with protection for over-voltage, reverse polarity, short-circuit, and overload

Control Panel & Instrumentation

- Mounted digital meters for Voltage, Current, Speed (RPM), Torque (Nm), Power (kW), and Energy (kWh)
- Selector switches for **AC/DC input, manual/auto mode, and load selection**
- Emergency stop and reset control
- Safety interlocks for all high-voltage circuits
- Modular design for ease of maintenance and upgrades

Data Acquisition & IoT Integration

Feature	Description
Data Logger	Multi-channel Modbus-based logger with real-time plotting
Software	PC-based dashboard for live monitoring and historical data analysis
Data Acquisition Parameters	Torque, RPM, Power, Voltage, Current, Temperature, Efficiency
IoT Features	Cloud storage, wireless access, and performance tracking
Communication Protocols	Modbus RTU/TCP, CAN, UART, USB, Ethernet
Data Export	CSV / Excel / PDF report generation
Visualization	Torque-Speed Curve, Efficiency Map, Regenerative Braking Graphs

Computer System

Parameter	Specification
Processor	Intel i7 / AMD Equivalent or higher
RAM	8 GB or more
Graphics	Dedicated 2 GB GPU or more
Storage	512 GB SSD
Display	21" LED Monitor or better
Connectivity	Wi-Fi, USB, Ethernet, CAN Interface
Accessories	Wireless Keyboard & Mouse

Safety & Protection Systems

- Over-voltage, under-voltage, and over-current protection
- Over-temperature protection
- Emergency stop and fault isolation mechanism
- Safe Torque Off (STO)
- Short-circuit and overload prevention
- Audible/visual fault alarms

Research & Training Applications

- Four-wheeler EV motor drive and controller performance evaluation
- Drive cycle simulation (Urban, Highway, Gradient)
- Regenerative braking and torque-speed mapping
- Battery and energy management system study
- IoT-based monitoring and analytics
- MATLAB/Simulink and LabVIEW interface for research experiments

Deliverables

- Complete 4W EV Motor Drivetrain Test Bench (Mechanical + Electrical)
- Control Panel with Safety Interlocks
- Data Acquisition & IoT Software Suite
- Computer System with Dashboard Software Installed
- User Manual, Circuit Diagrams & Test Protocols
- 1-Year Warranty & On-site Demonstration/Training

2.) 03-Wheeler EV Motor Drivetrain with Loading Facility

01

Live Experimental Setup with Data Acquisition, Data Logging & Variable Loading Functionality with Programmable Controller

System Overview

This setup is designed for **hands-on training, performance testing, and research** on Electric Three-Wheeler Drivetrain Systems. It enables users to study the working principles, load characteristics, and control behaviour of an EV drivetrain under various operating conditions. The setup integrates **motor, controller, Mechanical loading Chassis Dyno type, battery system, control panel, and software** for real-time analysis with NABL Certification.

Motor Type: PMSM / BLDC Motor with Hall Sensor

Rated Power: 4.5 kW

Peak Power: 9.9 kW

Rated Torque: 14–18 Nm

Maximum Torque: 28–30 Nm (approx.)

Speed (RPM): 3500 rpm or more

Voltage Range: 48–72 V DC

Efficiency: $\geq 92\%$

Protection: IP65 or better

Temperature Sensor: Integrated (for real-time thermal monitoring)

Software: Integrated data acquisition software for real-time parameter monitoring (Torque, RPM, Voltage, Current, Power, and Temperature)

Supported Motor Types

BLDC | PMSM

Hardware Protections

Over-voltage | Under-voltage | Over-current | Over-temperature

Dynamometer Chassis for Loading and Road Condition Simulation

Parameter	Specification
Type	Mechanical Structure with Roller and Sensor / Equivalent
Cooling Type	Air-Cooled
Direction of Rotation	Bi-directional
Torque Measurement	High-precision load cell

Additional Features

- High-accuracy and stable load control
- Smooth operation with precision-balanced rotor and bearings
- Precise control under rapid load changes

Battery and Charger

Component	Specification
Battery Type	EV-grade Lithium-Ion Battery with Smart BMS and Software
Battery Rating	5KWH /Liquid /Air Cooled
Compatibility	Compatible with BLDC/PMSM Motor & Controller
Battery Charger	Smart EV Charger with protection for reverse polarity, short-circuit, over-voltage, over-load, and buzzer alarm

Control Panel Features

- Integrated measurement meters for:
 - DC Voltage (VDC)
 - DC Current (IDC)
 - Throttle Voltage
 - Torque
 - RPM
- Motor controller securely mounted inside the panel
- External connection terminals provided for test leads
- LED indicators for system ON/OFF and fault status
- Emergency stop switch and safety fuses provided
- Expandable interface for **Data Acquisition & Logging System**

Data Acquisition and Logging System

Software Features:

- Real-time data acquisition of Torque, RPM, Voltage, Current, Power
- Data logging and graphical plotting (Torque-Speed, Efficiency curves)
- Programmable drive cycles simulation
- USB / Ethernet interface for PC connectivity
- Export data to Excel / CSV / PDF

Computer System:

- Minimum i5 Processor or Equivalent
- 8 GB RAM, 1 TB HDD
- Dedicated Graphics Card
- Wireless Keyboard & Mouse

Safety & Protection Systems • Over-voltage / under-voltage protection • Over-current & short-circuit protection • Motor over-temperature protection • Emergency stop with fault isolation • Enclosure with interlocking & earthing provision Educational & Training Outcomes • Understanding of 3W electric drivetrain structure and operation • Analysis of motor performance under various loads • Study of regenerative braking and controller tuning • Real-time efficiency mapping and performance evaluation • Skill development in EV diagnostics and maintenance																											
3.) 2-Wheeler EV Motor Drivetrain Training & Research Setup LIVE Experimental Setup with Data Acquisition, Data Logging & Variable Mechanical Loading Functionality System Overview The 2-Wheeler EV Motor Drivetrain Training and Research Setup is a live experimental platform designed to study, test, and analyse electric two-wheeler propulsion systems. It integrates an EV motor, controller, battery system, mechanical loading unit, and data acquisition interface for training, diagnostics, and performance evaluation under real-world load conditions. Motor & Drive System Specifications <table border="1"> <thead> <tr> <th>Parameter</th><th>Specification</th></tr> </thead> <tbody> <tr> <td>Motor Type</td><td>PMSM / BLDC Motor with Hall Sensor (Mid Drive Motor Based)</td></tr> <tr> <td>Rated Power</td><td>2.5 – 3.0 kW</td></tr> <tr> <td>Peak Power</td><td>Up to 6.0 kW</td></tr> <tr> <td>Rated Torque</td><td>9–12 Nm</td></tr> <tr> <td>Maximum Torque</td><td>Up to 20 Nm</td></tr> <tr> <td>Speed (RPM)</td><td>4000–4500 rpm</td></tr> <tr> <td>Operating Voltage</td><td>48–72 V DC</td></tr> <tr> <td>Current Rating</td><td>60–80 A</td></tr> <tr> <td>Efficiency</td><td>≥ 92%</td></tr> <tr> <td>Ingress Protection</td><td>IP65 or higher</td></tr> <tr> <td>Temperature Sensor</td><td>Integrated with real-time temperature monitoring</td></tr> <tr> <td>Software</td><td>Dedicated e-Motor monitoring software for live parameter visualization (Voltage, Current, Speed, Torque, Temperature, Power, Efficiency)</td></tr> </tbody> </table>	Parameter	Specification	Motor Type	PMSM / BLDC Motor with Hall Sensor (Mid Drive Motor Based)	Rated Power	2.5 – 3.0 kW	Peak Power	Up to 6.0 kW	Rated Torque	9–12 Nm	Maximum Torque	Up to 20 Nm	Speed (RPM)	4000–4500 rpm	Operating Voltage	48–72 V DC	Current Rating	60–80 A	Efficiency	≥ 92%	Ingress Protection	IP65 or higher	Temperature Sensor	Integrated with real-time temperature monitoring	Software	Dedicated e-Motor monitoring software for live parameter visualization (Voltage, Current, Speed, Torque, Temperature, Power, Efficiency)	01
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Motor Controller Specifications

Parameter	Specification
Type	Configurable / Programmable Controller
Control Algorithm	Field Oriented Control (FOC) / Vector Control
Supply Voltage Range	24–72 V DC
Continuous Current	80 A DC
Peak Current	150 A (peak)
PWM Switching Frequency	Selectable 8–80 kHz
Regenerative Capability	Four-quadrant operation with regenerative braking
Protections	Over-voltage, Under-voltage, Over-current, Over-temperature
Connectivity	USB / CAN / UART for data exchange
Software Features	Self-tuning, Closed-loop torque and speed control, Parameter programming & real-time graph visualization

Mechanical Dynamometer (Loading System)

Parameter	Specification
Type	Mechanical Loading
Rated Power Capacity	3.0 kW or higher
Maximum Torque Capacity	20 Nm
Speed Range	0–4500 RPM
Torque Measurement	High-precision load cell with digital output
Speed Measurement	Optical / Proximity sensor with digital RPM display
Mounting	Common MS Frame for Motor, Coupling, and Loading Unit
Coupling	Flexible universal shaft coupling
Direction of Rotation	Bi-directional
Loading Control	Manual and software-assisted variable mechanical loading
Cooling	Air-cooled system for extended testing duration

Battery & Charger

Parameter	Specification
Battery Type	Lithium-ion (EV-grade)
Battery Rating	3 KWH or Higher
Protection	Reverse polarity, Short-circuit, Over-voltage, Over-temperature, Over-load
Charger Rating	Smart charger 6 A with automatic cutoff and audio-visual alert

Control Panel & Instrumentation

• Integrated Motor Controller mounted on panel • Digital Meters for: ○ DC Voltage (VDC) ○ DC Current (IDC) ○ Torque (Nm) ○ Speed (RPM) ○ Power (kW) • Emergency Stop & Fault Isolation Switches • Throttle Input Control for speed variation • DAQ System with Modbus / USB Connectivity ○ Real-time data logging and visualization ○ Graph plotting (Speed, Torque, Power vs Time) ○ Data export (CSV / Excel formats) Data Acquisition & Software Features • Integrated software for live data monitoring and control • Graphical dashboard displaying: ○ Torque, Speed, Efficiency, Current, Voltage • Real-time graph plotting and storage • Export of test data for report generation • Control commands through GUI (Start, Stop, Ramp Load, etc.) • Optional IoT Integration for remote performance monitoring Educational & Training Outcomes • Understanding EV powertrain architecture • Performance analysis under mechanical load • Efficiency & torque-speed characteristic study • Regenerative braking and controller tuning • Data acquisition and IoT-based analytics	
4.) 2-Wheeler Electric Vehicle Drivetrain Training Setup with Mechanical Loading Live Experimental Setup with Hub Motor, Controller, Power Module, Test Bench & Data Monitoring System Overview This setup provides hands-on training and research capabilities for electric two-wheelers (E-Bikes), allowing users to study: • Motor performance under controlled parameters • Speed, voltage, current, torque, and efficiency measurement • Mechanical load behavior via adjustable loading • Controller programming and real-time monitoring All components are mounted on a common motor-generator frame for safe and modular operation. Motor Specifications	01

Parameter	Specification
Motor Type	BLDC Hub Motor
Rated Power	≥ 750 W
Input Voltage	48 V DC
Rated Speed (RPM)	1500 / 3000 or more
Supply Voltage Range	8–50 V DC
Peak Current	32 A (peak-to-peak)
Continuous Current	20 A DC
Maximum Continuous Output Power	≥ 800 W
Efficiency	$\geq 90\%$
Protection	IP65 or better; Bus over-voltage / under-voltage, Over-current, Over-temperature

Motor Controller Specifications

Parameter	Specification
Type	Configurable / Programmable Motor Controller
Control Modes	Open-loop / Closed-loop Torque, Speed, or Position Control
Advanced Control	Field-Oriented Control (FOC), Sensorless& Sensor-based Control
PWM Frequency	Selectable 8 kHz – 80 kHz
Hardware Protections	Over-voltage, Under-voltage, Over-current, Over-temperature
Software Integration	MATLAB Simulink, LabVIEW, Arduino, Python, C++ Libraries, Controller Simulink Block Set
Digital Control	UART, USB, CAN open protocol support

Features:

- Automatic motor parameter identification & self-tuning
- Real-time integration with software models for research and training

Mechanical Loading Specifications

Parameter	Specification
Type	Mechanical Load Dynamometer
Capacity	Up to 100 kg
Direction of Rotation	Bi-directional
Loading / Unloading	Manual load change
RPM Display	4-digit display with proximity sensor
Mounting	Single MS frame with flexible universal shaft for DUT

Auxiliary Controls & Accessories

- E-Bike Twist Throttle Grip Accelerator

- Key switch, Headlight, Brake, Horn button
- Battery Level Indicator
- Throttle voltage monitoring (Voltmeter)

Battery & Charger

Component Specification

Battery Type	Lithium LFP Battery with BMS
Voltage	48 V
Capacity	30 Ah
Charger	42 V / 4 A, with Reverse Polarity, Short-circuit, Over-voltage, Over-load Protection & Buzzer alert

Educational & Training Outcomes

- Hands-on study of hub motor performance under varying mechanical loads
- Understanding motor-controller interaction and programming
- Real-time monitoring of voltage, current, torque, speed, and power
- Analysis of battery behaviour and charging system performance
- Training in safe operation, assembly, and troubleshooting of EV drivetrain systems

5.) Interactive Electric Two-Wheeler Training System with Fault Simulation, IoT & Voice Control

01

System Overview

This setup is a hands-on educational platform designed for Electric Two-Wheeler (2W EV) training. It features:

- Open chassis 2W platform with real EV components
- IoT-enabled monitoring for remote performance analysis
- Voice command control for smart operation
- Fault simulation for diagnostic training
- Wiring harness training, play-based and integrated with oscilloscope for live measurement and learning

Ideal for engineering labs, skill development centres, ITIs, and EV training institutes.

Motor Specifications

Parameter	Specification
Motor Type	BLDC Hub Motor
Hub/Rim Size	10 Inch
Rated Voltage	48 V DC
Rated Power	1000 W
Sensor Type	Hall Sensor
Operating Modes	Forward / Reverse, Eco / Sport

Integration IoT-enabled for remote monitoring of motor parameters

Motor Controller Specifications

Parameter	Specification
Controller Type	MOSFET-based
Input Voltage	48–60 V DC
Maximum Current	35 A
Control Features	Speed control, flux weakening, current limit adjustment, software programmable
Connectivity	UART / USB / CAN; compatible with MATLAB, LabVIEW, Python, C++
Advanced Features	Self-tuning, Closed-loop Torque & Speed Control, Voice Command Interface

Battery & Charger

Component Specification

Battery Type	Lithium LFP with Smart BMS
Voltage	48 V
Capacity	20 Ah
Features	Bluetooth-enabled BMS, IoT data monitoring, protection against over-voltage, over-current, overload, reverse polarity
Charger	MOSFET-based, 54.6 V DC / 6 A, 3–4 hr charging, with alarms and protections

Interactive Control Panel & Accessories

- **Real-time interactive panel** (MS powder-coated / aluminum frame)
- **Front-side pinouts** for easy student connections
- Components included:
 - BLDC Hub Motor & Controller
 - Handgrip Throttle, E-Brakes, DC Circuit Breakers
 - 2W EV Display Console (Battery Level, Speed, Odometer, Voltage)
 - Key Switch & Ignition
 - DC-DC Converter 48V → 12V / 15A (lights, indicators, horn)
 - 3-Speed Switch, Forward/Reverse Switch
 - Headlight On/Off & Up/Down, LH/RH Indicators, Tail Light, Horn Switch
- **IoT Features:** Remote monitoring and control of motor, battery, and controller parameters
- **Voice Control:** Operate key functions such as motor start/stop, lights, indicators, horn, speed modes

Fault Simulation & Wiring Harness Training

- Fault simulation switches for safe **hands-on troubleshooting**
- Learn and test:
 - Throttle, Forward/Reverse, Indicator, Headlight, Horn, Brake, LCD console
 - Motor speed control in Eco & Sport modes

○ Wiring harness assembly/disassembly ○ Sensor and pinout identification ○ Motor controller parameter programming • Play-based wiring harness training with integrated oscilloscope for live voltage, current, and signal measurement Data Acquisition & Analysis • CAN bus data from BMS for system performance monitoring • Real-time data logging of: Voltage, Current, Speed, Torque, Battery state • Graphical visualization and data export (CSV / Excel) • Integration with oscilloscope for signal analysis and motor diagnostics Educational & Training Outcomes • Understand 2W EV powertrain architecture and system interconnections • Hands-on experience with IoT-based monitoring and voice-controlled operation • Learn fault simulation, wiring harness assembly, and signal diagnostics • Practical exposure to motor controller tuning, speed modes, and BMS analysis • Data-driven analysis of motor, battery, and controller performance																			
6. EV Golf Kart (Battery Operated) 4-Wheeler Working Model With Configurable Automobile Controller for Education & Hands-on Training A. System Overview This 4-wheeler electric vehicle setup is designed for hands-on training, experimentation, and retrofitting projects for students. • Open chassis design (old & reconditioned) for full visibility of components • Suitable for EV labs, skill development centers, and engineering education • Students can study powertrain, motor control, battery management, and wiring harnesses • Configurable controller allows experimentation with speed, torque, and regenerative braking Motor & Drive Specifications <table border="1"> <thead> <tr> <th>Parameter</th><th>Specification</th></tr> </thead> <tbody> <tr> <td>Motor Type</td><td>PMSM or BLDC Motor</td></tr> <tr> <td>Rated Power</td><td>Minimum 3 kW</td></tr> <tr> <td>Operating Speed</td><td>25–30 km/h (approx. 7–8 m/s)</td></tr> <tr> <td>Voltage Rating</td><td>48 V DC</td></tr> <tr> <td>Current Rating</td><td>50 A</td></tr> <tr> <td>Torque Control</td><td>Programmable via motor controller</td></tr> <tr> <td>Operating Modes</td><td>Forward, Reverse, Eco, Sport</td></tr> </tbody> </table> Motor Controller <table border="1"> <thead> <tr> <th>Parameter</th><th>Specification</th></tr> </thead> <tbody> </tbody> </table>	Parameter	Specification	Motor Type	PMSM or BLDC Motor	Rated Power	Minimum 3 kW	Operating Speed	25–30 km/h (approx. 7–8 m/s)	Voltage Rating	48 V DC	Current Rating	50 A	Torque Control	Programmable via motor controller	Operating Modes	Forward, Reverse, Eco, Sport	Parameter	Specification	01
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Controller Type Configurable Automobile Controller Control Features Speed, torque, and regenerative braking Connectivity UART / CAN / USB for programming & monitoring Safety Features Over-current, Over-voltage, Thermal Cutoff	
Battery & Power Supply Component Specification Battery Type Lithium LFP with BMS Voltage / Capacity 48 V / 100 Ah Protections Over-voltage, Over-current, Overload, Reverse polarity alert	
Auxiliary Controls & Accessories • Foot Throttle for speed control • Wiring Harness with full pinouts exposed for learning and troubleshooting • Braking System (mechanical or electronic) • Power Distribution & Safety Fuses • Open chassis structure for assembly, disassembly, and retrofitting exercises Educational & Training Outcomes • Understand 4-wheeler EV architecture and components • Hands-on motor control, speed regulation, and battery operation • Study wiring harness, interconnections, and troubleshooting • Learn retrofitting techniques and performance testing • Explore controller configuration and parameter tuning	
7.) HYBRID ELECTRIC VEHICLE POWERTRAIN TRAINING SETUP System Overview A complete <i>training and research test bench</i> designed to demonstrate the working principles, integration, and control of a Hybrid Electric Vehicle (HEV) powertrain combining an IC Engine and an Electric Motor. The setup enables trainees and researchers to study parallel, series, and plug-in hybrid modes, focusing on energy flow, regenerative braking, and power management strategies. Technical Specifications Parameter Specification IC Engine Single Cylinder Petrol Engine (100–125 cc) with EFI system	01

Electric Motor	Permanent Magnet Synchronous Motor (PMSM) / BLDC Motor, 1–3 kW
Controller	Hybrid Powertrain MCU with CAN Communication
Transmission	Belt Drive or Coupling to Common Shaft
Battery Pack	Li-ion 48 V / 60 V, 30–40 Ah
Generator Mode	Motor acts as generator during braking
Instrumentation	Torque sensor, speed sensor, throttle sensor, current and voltage sensors
Display & Control Panel	Touchscreen/PC-based GUI with real-time monitoring
Software Interface	Data Acquisition Software with CAN & Modbus Protocol
Safety Features	MCB, emergency stop, overload & overvoltage protection
Power Requirement	230 V AC, 50 Hz, 15 A
Frame Construction	Powder-coated mild steel frame with mounted components and acrylic guarding
Dimensions (approx.)	1800 mm (L) × 900 mm (W) × 1500 mm (H)
Functional Capabilities - Demonstration of hybrid operation (engine + motor) - Study of regenerative braking and energy recovery - Power split and torque distribution analysis - Simulation of drive modes (EV mode, Hybrid mode, Engine mode) - Real-time performance visualization through PC software - Measurement of engine and motor efficiency	
Software & Data Acquisition - CAN-based communication interface - Real-time data logging (voltage, current, speed, torque, SoC, temperature) - Control algorithms for hybrid operation - Graphical dashboard for live parameter display and data export	
Scope of Supply - Complete HEV Powertrain Assembly (Engine + Motor + Controller) - Control and Instrumentation Panel - Data Acquisition PC & Software - Cabling, connectors, and protective casing - User Manual and Training Module	
8.) 3-WHEELER ELECTRIC VEHICLE TRAINING SETUP WITH SOLAR POWERED CHARGING SYSTEM	
System Overview The 3–Wheeler Electric Vehicle Training Setup with Solar Powered Charging System is a comprehensive <i>hands-on educational and research platform</i> replicating the complete electric powertrain of an e-auto/e-rickshaw integrated with a solar charging station. The system enables students and engineers to study EV propulsion, energy flow, and solar-based charging,	

01

along with real-time data monitoring, regenerative braking, and CAN-based diagnostics.

It demonstrates the complete energy ecosystem — from solar power generation → battery storage → vehicle propulsion.

Technical Specifications

Component	Specification
Motor Type	BLDC / PMSM Motor – 1.5 kW to 3 kW
Motor Voltage	48 V / 60 V / 72 V DC (customizable)
Controller	Compatible motor controller with regenerative braking
Battery Pack	Li-ion Battery 48–72 V, 60–100 Ah (or Battery Emulator for lab safety)
Transmission	Differential gear drive (rear axle drive)
Chassis Setup	Open-frame structure with mounted motor, controller, and battery
Solar Panel Array	600 Wp – 1 kWp Mono/Polycrystalline Panels
Solar Charge Controller	MPPT-based, 48–72 V DC output
Hybrid Charger	Solar + Grid AC input; automatic source switching
Instrumentation	Voltage, current, torque, and speed sensors with DAQ interface
Display	Digital meters + PC-based graphical dashboard
Software Interface	CAN-enabled data acquisition system
Safety Features	Emergency stop, overload, short-circuit, and overvoltage protection
Power Requirement	230 V AC, 50 Hz (when solar not active)
Dimensions (approx.)	2000 mm (L) × 1100 mm (W) × 1300 mm (H)

Solar Charging Subsystem

- Roof-mounted / floor-mounted solar panel array
- MPPT solar charge controller for maximum efficiency
- Hybrid power management (solar + grid)
- Monitoring of solar voltage, current, and generated kWh
- Demonstration of DC–DC conversion and battery charging principles

Functional Demonstrations

- Working of 3W EV powertrain (motor, controller, battery)
- Real-time solar charging of battery pack
- Hybrid power switching (solar/grid)
- Regenerative braking operation
- Torque–speed and efficiency curve analysis
- CAN-based monitoring and diagnostics
- Fault simulation and system response study

Learning Objectives

- Understanding complete EV architecture and energy flow
- Study of solar charging and hybrid energy management
- Hands-on experience with motor control, regenerative braking, and BMS

- Integration of renewable energy with EVs - System diagnostics and performance analysis																													
9.) 2 W ELECTRIC VEHICLE WORKING MODEL TRAINING SETUP (OPEN LEARNING FORMAT) The 2 W Electric Vehicle Working Model Training Setup in Open Learning Format is a <i>fully functional, open-frame demonstrator</i> representing the complete powertrain and control system of an electric vehicle. It is specifically designed for hands-on training, live demonstrations, and research experiments related to EV propulsion, energy flow, regenerative braking, and diagnostics. The open learning format ensures that every component — from battery to motor and controller — is visible, accessible, and measurable for deeper conceptual understanding. Technical Specifications <table border="1"> <thead> <tr> <th>Component</th><th>Specification</th></tr> </thead> <tbody> <tr> <td>Motor Type</td><td>BLDC / PMSM Motor (1–3 kW)</td></tr> <tr> <td>Motor Voltage</td><td>48 V / 60 V / 72 V DC (as per requirement)</td></tr> <tr> <td>Controller</td><td>Compatible EV controller with regenerative braking and throttle control</td></tr> <tr> <td>Battery Pack</td><td>Li-ion 48–72 V, 30–60 Ah (with protection BMS)</td></tr> <tr> <td>Transmission</td><td>Direct coupling / chain drive / belt drive</td></tr> <tr> <td>Chassis</td><td>Open mild-steel frame (powder-coated) with clear layout of components</td></tr> <tr> <td>Instrumentation</td><td>Digital meters for voltage, current, RPM, torque, and temperature</td></tr> <tr> <td>Display Interface</td><td>PC-based CAN communication software + analog meters on frame</td></tr> <tr> <td>Sensors</td><td>Speed, torque, current, voltage, temperature sensors</td></tr> <tr> <td>Software Interface</td><td>CAN-based Data Acquisition System (DAQ)</td></tr> <tr> <td>Safety Features</td><td>MCB, fuse, overload protection, emergency stop</td></tr> <tr> <td>Power Requirement</td><td>230 V AC, 50 Hz input for charger and system</td></tr> <tr> <td>Dimensions (approx.)</td><td>1500 mm (L) × 800 mm (W) × 1200 mm (H)</td></tr> </tbody> </table>	Component	Specification	Motor Type	BLDC / PMSM Motor (1–3 kW)	Motor Voltage	48 V / 60 V / 72 V DC (as per requirement)	Controller	Compatible EV controller with regenerative braking and throttle control	Battery Pack	Li-ion 48–72 V, 30–60 Ah (with protection BMS)	Transmission	Direct coupling / chain drive / belt drive	Chassis	Open mild-steel frame (powder-coated) with clear layout of components	Instrumentation	Digital meters for voltage, current, RPM, torque, and temperature	Display Interface	PC-based CAN communication software + analog meters on frame	Sensors	Speed, torque, current, voltage, temperature sensors	Software Interface	CAN-based Data Acquisition System (DAQ)	Safety Features	MCB, fuse, overload protection, emergency stop	Power Requirement	230 V AC, 50 Hz input for charger and system	Dimensions (approx.)	1500 mm (L) × 800 mm (W) × 1200 mm (H)	01
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10.) E-Mobility Motors & Li-ion Battery Cut-Section Display Workbench Purpose: A hands-on training and demonstration workbench designed for easy identification and understanding of real-time components used in electric bikes and cars. Ideal for classroom, lab, or workshop training. Features: - Cut-section models of E-Bike/E-Car motors and Li-ion battery packs for detailed internal study. - Components are mounted in stand-up format for convenient access and demonstration. Components Included: - E-Bike Motor (cut-section) Hub Motor - E-Bike Motor Controller - E-Bike Mid Drive Motor - Headlight & Indicators - Battery Pack (Li-ion) 32 AH 48V	01																												

6. Battery Management System (BMS) PCB 7. DC-DC Converter 8. Twist Grip Throttle 9. Foot / Pedal Throttle 10. Battery Level Indicator 11. Combination Power Switch 12. Key Switch 13. PAS (Pedal Assist Sensor) 14. Hall Sensor with PCB 15. Charging Ports (6 Types) 16. Onboard Charger 17. ABS ECU 18. Cluster Panel 19. Wires and Cables 20. Semiconductor ICs	
11.) Four-Wheeler EV Working Cut-Section Model Purpose: A hands-on training and skill development model of a commercial electric vehicle (EV) for detailed study of real-world EV components and systems. Enables learners to understand powertrain, battery, and control systems in a fully operational yet safe format. Make / Model Options: • TATA Tiago EV • TATA Tigor EV • TATA EQV Key Features: • Working cut-section model of the EV showing internal layout of powertrain, battery, and auxiliary components. • Hands-on learning for students, engineers, and technicians on EV assembly, operation, and troubleshooting. • Components are mounted and accessible for practical demonstration. • Demonstrates real-time functioning of motor, controller, and battery systems. Components Displayed: 1. E-Motor (Drive Motor – cut-section) 2. Motor Controller / Inverter 3. High-Voltage Li-ion Battery Pack (cut-section) 4. Battery Management System (BMS) 5. DC-DC Converter 6. Onboard Charger 7. Throttle (Accelerator Pedal & Sensor) 8. Regenerative Braking System / E-Brakes 9. Dashboard Display Console 10. Wiring Harness & Connectors 11. Auxiliary Systems (Headlamps, Indicators, etc.) 12. Cooling Systems (if applicable – battery & motor) 13. Gear / Transmission cut-section (if applicable) Benefits for Training & Skill Development:	01

• Understand EV architecture and component interconnections. • Conduct hands-on assembly, disassembly, and diagnostics safely. • Learn practical EV troubleshooting, maintenance, and repair skills. • Ideal for technical institutes, EV training centers, and skill development programs. Model Type: Stand-up / Table-top Working Cut-Section Dimensions: Customized to vehicle size (typically scaled to fit training labs) Quantity: 01 unit	
12.) Hydrogen Fuel Cell Electric Vehicle Training System Integrated with Renewable Energy A hands-on, renewable energy-based training system demonstrating hydrogen fuel cell operation, energy conversion, and electric vehicle propulsion. Designed for skill development in fuel cell technology, hybrid energy systems, and EV powertrains. System Overview: • Vehicle Type: Stand-alone FCEV or HEV training platform • Energy Sources: ◦ Hydrogen Fuel Cell (PEM) for propulsion and/or battery charging ◦ Optional Renewable Energy Integration (Solar PV / Wind) for hybrid operation • Battery Pack: Li-ion / LiFePO₄ for energy storage and load leveling • Motor Type: DC / BLDC Motor with Controller Hydrogen Fuel Cell Specifications: • Type: PEM (Proton Exchange Membrane) • Number of Cells: ≥10 • Rated Power: ≥500 W per module • Total Power: ≥1000 W • Performance: 36 V @ 8.3 A • Efficiency: 40% @ 36 V • Startup Time: ≤30 s at ambient temperature • Operating Temperature: External: 5–30 °C, Max Stack: 65 °C Fuel Cell Electrical & Safety Features: • H₂ Supply Valve Voltage: 12 V • Purging Valve Voltage: 12 V • Blower Voltage: 12 V • Hydrogen Pressure: 0.45–0.55 bar • Hydrogen Purity: ≥99.995% dry H₂ • Hydrogen Flow Rate (Max Output): 3.9 L/min • Low Voltage Shutdown: 30 V • Overcurrent Shutdown: 12 A • Overtemperature Shutdown: 65 °C • External Power Supply for Control: 13 V ±1 V @ 10 A Battery & Motor System: • Battery Pack: Li-ion / LiFePO₄, 36–48 V nominal • Motor Controller: Integrated with battery and fuel cell interface • Charging Controller: Manages fuel cell-to-battery energy transfer • Monitoring: Voltage, current, SOC, hydrogen flow, and power output •	01

Renewable Energy Integration: • Solar PV or Wind Module (Optional): Provides auxiliary power for battery charging or load sharing • Energy Management: Demonstrates hybrid renewable + fuel cell energy coordination Training & Educational Benefits: • Understand fuel cell operation, hydrogen handling, and safety protocols • Learn battery charging from fuel cells and renewable sources • Hands-on experience with EV powertrain and hybrid energy systems • Develop skills in diagnostics, assembly, and system integration • Ideal for technical institutes, skill development centers, and research labs Setup Type: Stand-up / Modular Workbench for training	
13). Electric Vehicle Chassis Dynamometer for 2-Wheeler EVs with Electric 2-Wheeler A specially customized EV chassis dynamometer for hands-on training, performance testing, and research. Enables learners to analyse vehicle dynamics, energy efficiency, and motor performance of two-wheeler electric vehicles. Vehicle Compatibility: • Designed for Two-Wheeler EVs • Maximum testable speed: 130 km/h • Suitable for performance testing, environment and emission analysis, and motor tuning Key Features: • Dynamometer Type: Chassis dynamometer with load simulation • Load System: 25 Nm Eddy Current Retarder • Display: 21-inch screen for real-time data visualization • Computing: Mini-computer with pre-installed analysis software • Cooling System: 0.5 HP cooling fan to maintain operating temperatures during tests Capabilities: • Measure and analyze vehicle speed, torque, power output, and efficiency • Evaluate motor performance under different loads and speeds • Simulate road load and real-world driving conditions • Conduct training on vehicle tuning, performance optimization, and diagnostics • Safe and controlled environment for educational demonstrations and research Benefits for Training & Research: • Hands-on understanding of EV motor and drivetrain behavior • Allows practical experimentation in vehicle performance and load handling • Provides real-time data collection for analysis and report generation • Ideal for technical institutes, EV labs, and research centers Setup Type: Floor-mounted, stand-alone chassis dynamometer Dimensions: Customized based on 2-wheeler size User Interface & Ease of Use: • Easy-to-use GUI: Intuitive and user-friendly interface for smooth operation • Integrated Dyno Software: Simplifies data collection, visualization, and control of the dynamometer • Vehicle Profiles: Separate profile options to save and manage test data for different vehicles Data Analysis & Visualization: • Comparison Mode: Quickly compare test results of two different vehicles side-by-side	01

• Real-Time Plotting: Generate real-time graphs for performance parameters such as speed, torque, power, and efficiency • Export Options: Test data can be saved in CSV, PNG, JPG formats for reporting and further analysis Additional Features: • Dedicated CAN Interface: ○ Provides access to log real-time vehicle data ○ Supports future interfacing with external subsystems to enhance system capabilities ○ Enables logging of vehicle parameters such as voltage, current, power, speed, and torque ○ Facilitates advanced analysis, research, and integration with additional training modules Training & Research Benefits: • Provides hands-on learning in data acquisition, performance evaluation, and comparative analysis • Supports academic research and vehicle optimization studies • Enables customizable testing workflows for different EV types	
14. Full Hybrid Electric Vehicle (HEV) Anatomical Working Car Platform 1. Item Description Supply, installation, testing, and commissioning of a Full Hybrid Electric Vehicle (HEV) Anatomical Working Car Platform based on Honda City/Grand vitara /Toyota Hycross Hybrid (e:HEV) or equivalent architecture. The complete vehicle shall be anatomically exposed for educational purposes while remaining fully functional under laboratory-safe operating conditions. 2. Purpose of the System The system is intended to provide whole-vehicle understanding of strong hybrid technology, demonstrate interaction between engine, motor, generator, and battery, and visualize real-time energy flow paths in EV, hybrid, engine, and regenerative modes. 3. System Configuration • Vehicle Type: Full Hybrid Electric Passenger Car (HEV) • Hybrid Technology: Strong Hybrid (Series–Parallel / Power-Split) • Drive Configuration: Front-wheel drive • Vehicle Structure: Entire car anatomical with exposed or transparent body panels • Operation: Fully functional at low-speed, lab-safe conditions 4. Complete Vehicle Anatomical Exposure The entire vehicle shall be exposed for study, including engine, electric motor, generator, hybrid transmission, battery system, power electronics, drivetrain, steering, suspension, braking, and thermal systems. 5. Internal Combustion Engine System • Petrol engine optimized for hybrid operation (Atkinson cycle) • Engine mounted in original vehicle position • Visible crankshaft, pistons, intake and exhaust path • Automatic engine start/stop during hybrid operation 6. Electric Motor & Generator System • Traction motor: Permanent Magnet Synchronous Motor (PMSM) • Integrated generator motor • Demonstration of EV drive, motor assist, and battery charging • Visible rotation with safety covers 7. Hybrid Transmission System • Transmission Type: e-CVT / power-split hybrid transmission • Planetary gear-based mechanism • Anatomical exposure of torque and power flow paths 8. Battery & Energy Storage System • Lithium-ion hybrid battery pack • Visible battery enclosure and modules • Battery Management System displaying SOC, voltage, and temperature	01

• Emergency isolation switch 9. Power Electronics & Electrical System • Inverter, DC-DC converter, and control units mounted visibly • High-voltage and low-voltage wiring clearly routed • Auxiliary 12 V system demonstration 10. Drivetrain, Steering, Suspension & Braking • Front-wheel drive drivetrain with visible shafts • Rack and pinion steering system • Front and rear suspension assemblies • Disc braking system with regenerative braking integration 11. Functional Operating Modes • EV Mode • Hybrid Drive Mode • Engine Drive Mode • Battery Charging Mode • Regenerative Braking Mode • Idle start-stop operation 12. Control & Instrumentation • Vehicle-level control panel • Display of battery SOC, motor speed, engine RPM, and vehicle speed • Energy flow indication 13. Safety Requirements • Transparent polycarbonate protective covers • Emergency stop (E-STOP) • Electrical grounding and insulation • Warning labels for high-voltage and moving parts 14. Mechanical Construction • Automotive-grade rigid chassis • Powder-coated support structure if stationary • Lockable wheels or stand for demonstration 15. Training & Learning Outcomes Students will understand complete hybrid vehicle architecture, energy management, regenerative braking, and integration of mechanical and electrical systems. 16. Documentation & Training • Student laboratory manual • Instructor guide • Full vehicle block diagrams • Operating and safety manuals 17. Installation & Commissioning • On-site installation • Functional testing • Demonstration of operating modes • Faculty training	
15. Working Model of Hybrid Petrol Engine (Training Model) (Brand New) 1. Description The Working Model of Hybrid Petrol Engine should be a cut-section, demonstration-type training model designed to explain the construction and working principle of a hybrid petrol engine system combining an internal combustion engine and electric motor. 2. Hybrid System Concept Demonstration of hybrid power flow, energy sharing between petrol engine and electric motor, and regenerative operation concept. 3. Engine & Mechanical Construction	01

4-cylinder petrol engine model (demonstration type) with DOHC configuration, variable valve timing concept, and multi-point fuel injection representation. 4. Electric Drive & Transmission Visible electric motor/generator unit, belt/CVT transmission arrangement, gear mechanism, and differential assembly. 5. Cut-Section & Visibility Major components cut-sectioned and color-coded for clear visualization of internal parts. 6. Operation Manual/demonstration mode operation with smooth and safe movement of parts. 7. Mounting & Frame Rigid MS / Alluminium frame mounted on wheels/castors for easy mobility. 8. Dimensions & Weight Approximate dimensions: (1500 × 800 × 1300 mm) or more. Approximate weight: 190 kg or more. 9. Learning Outcomes Understanding of hybrid vehicle architecture, power transmission, and role of electric motor in hybrid systems. 10. Documentation Operation and demonstration manual, component identification chart, and instructor notes.	
16. Working Electric Passenger Auto-Rickshaw – Cut-Sectioned Training System (Brand new) 1. Description The Working Electric Passenger Auto-Rickshaw – Cut-Sectioned Training System shall be a full-scale, electrically powered educational training model developed from a commercial electric passenger auto-rickshaw, in which selected systems are cross-sectioned while remaining operational wherever technically and safely possible. The system shall demonstrate real-time working of electric drivetrain and vehicle subsystems using handle-type steering. 2. Vehicle Configuration Passenger-type electric auto-rickshaw (e-rickshaw) with handle-bar steering system, operating at safe voltage ≤ 72 V DC. Designed for controlled indoor demonstration with speed limitation for safety. 3. Working & Cross-Sectioned Systems Electric traction motor (working, partially cross-sectioned), reduction gearbox (working, cross-sectioned), differential & rear axle (working, half cut), handle-type steering (working), suspension system (partially working), brake system (working at low speed). 4. Battery & Power Electronics Functional battery pack with partially cross-sectioned enclosure using dummy cells where exposed. Functional motor controller with transparent or cut-sectioned enclosure. 5. Body & Passenger Cabin Sectioning One-side body panels sectioned to expose seating, floor structure, and chassis., and driver handle area intact. 6. Control & Safety Features Handle-mounted throttle, key-based power ON/OFF, emergency stop switch, speed limiter, transparent guards on rotating parts, and no exposed live terminals. 7. Mounting & Structure Mounted on heavy-duty MS fabricated base frame with lockable castor wheels or fixed mounting and anti-vibration supports.	01

8. Color Coding & Labeling Motor – Red, Battery – Orange, Controller – Blue, Transmission & Differential – Yellow, Chassis – Green. Clear component labels and power-flow arrows provided. 9. Learning Outcomes Observation of working EV drivetrain, understanding of handle-type steering mechanism, and visualization of EV power flow and system integration. 10. Documentation Operation & safety manual, electrical and mechanical block diagrams, component identification chart, and instructor experiment guide.	
17. Model-Based Development (MBD) Real-Time Controller 1. Item Description Supply, installation, and commissioning of a Model-Based Development (MBD) Real-Time Controller, designed for real-time control, simulation, rapid prototyping, and hardware-in-the-loop (HIL) applications, operating entirely without dependency on an external PC operating system during execution. The system shall support design, simulation, execution, and debugging directly on the target hardware, ensuring true deterministic real-time performance. 2. Real-Time Performance Requirements • 100% real-time execution on target hardware • No requirement of PC, host OS, or external real-time kernel during operation • Core clock frequency: ≥ 150 MHz • Minimum execution step size: ≤ 6.7 ns • Concurrent block execution capability: ≥ 100 kHz • Deterministic timing with guaranteed real-time behavior 3. Hardware Platform Processor: • Zynq-7000 SoC or equivalent • 32-bit ARM Cortex-A9 processor Memory: • Minimum 512 MB DDR3 RAM • Minimum 32 Mb QSPI Flash Designed for high-throughput control and simulation workloads 4. Model-Based Development Environment • Graphical block-based model development • Models executed directly on the controller • No FPGA synthesis or long compilation cycles required • Live reconfiguration and cascading of multiple controllers while running • Suitable for rapid control algorithm development and validation 5. Real-Time Block Library The system shall include a comprehensive real-time block library (minimum 300 blocks), including: 5.1 Control & Mathematical Blocks: • PID controllers • Dead-time blocks • Integrators and differentiators • Transfer function blocks	01

- Filters, limiters, delays

5.2 Power Electronics & Motor Control Blocks:

- Clarke and Park transformations
- Inverse Clarke and Park transforms
- PWM and SVPWM generation
- Multi-phase signal generation

5.3 Signal Generation & Logic:

- Sine, triangle, sawtooth waveform generators
- Logic blocks, comparators
- Multiplexer and demultiplexer blocks

5.4 Advanced Processing:

- Custom processor modules
- User-defined scripting capability

6. Standalone Real-Time Execution

- Models shall run directly on the controller hardware
- No dependency on external host PC during execution
- Multiple controllers can be interconnected and reconfigured live
- Supports continuous operation without interruption

7. Built-In Measurement & Debugging Tools

- Digital Storage Oscilloscope (DSO): Minimum 4 channels $\times$ 2 instances
- Logic Analyzer: Minimum 7 channels $\times$ 2 instances
- Time Plotter: Minimum 6 channels
- Data Logger: Storage capacity $\geq 1,000,000$ samples @ 100 kHz
- Graphical GUI elements: Knobs, gauges, numeric displays, LED indicators

8. Input / Output Specifications

8.1 Digital I/O:

- Digital Inputs: Minimum 12 isolated inputs, 5 V tolerant
- Digital Outputs: Minimum 12 isolated outputs, PWM up to 500 kHz
- Additional configurable digital I/Os: Minimum 16 channels (3.3 V)

8.2 Analog I/O:

- Analog Inputs: Minimum 8 channels, 16-bit, ± 10.24 V, ≥ 500 kSPS, isolated
- Analog Outputs: Minimum 8 channels, 16-bit, 0–5 V, ≥ 100 kSPS, isolated

9. Application Areas

- Power electronics and inverter development
- Motor control and drive systems
- Embedded control system design
- Hardware-in-the-Loop (HIL) testing
- EV, renewable energy, and automation research
- Academic teaching and advanced laboratory experimentation

10. Documentation & Training

- User manual and hardware documentation
- Block library reference guide
- Example models and application notes
- Training for faculty / users (online or onsite)

6. Motor Characteristic Test Setup**1. PMSM (Test Motor)**

- Type: Permanent Magnet Synchronous Motor (PMSM)
- Power: **1.8 kW**
- Voltage: 415 V, 3-phase, 50 Hz
- Speed: 1500 / 3000 rpm (as per motor rating)
- Insulation: Class F/B, IP54
- Shaft with coupling provision, mounted on common base

2. Loading Motor (DC Shunt)

- Type: DC Shunt Motor
- Power: **3 HP**
- Voltage: 220–240 V DC
- Used as load for PMSM through coupling
- Mounted on same base with safety guard

3. Supply Control

- **3-phase Auto-transformer** (0–440 V output, 5 kVA min.)
- For variable voltage input to PMSM

4. Base Frame

- Heavy-duty MS structure with machined top plate
- **Zero level machining** for accurate alignment
- Flexible coupling with guard and anti-vibration mounts

5. Control & Safety

- Control panel with MCBs, fuses, indicators, and emergency stop

Proper wiring, earthing, and protection as per standards

NOTE: With every Drive Train Training setup/Training System or Trainer Kit/Power Train, 'Fault Simulation Module' must be included with following fault detection switches.

Fault Simulations Module

- Battery under-voltage warning fault
- Battery temperature sensor fault
- BMS communication (CAN) interruption fault
- Inverter enable / disable fault
- Motor enable / disable fault
- DC-DC converter 12 V output fault
- Regenerative braking disable fault
- Engine auto start-stop disable fault

EV Battery, Cell, BMS Training & Research Setup [Technology Division–2]		
1	Battery Management System (BMS) & CAN Protocols Training & Test Rig AI-Integrated Purpose: A hands-on, AI-enhanced training and research platform designed to teach, test, and experiment with Battery Management System (BMS) control algorithms, Controller Area Network (CAN) communication, and intelligent data analysis using AI. Enables	01

	learners to gain practical experience in battery performance optimization, predictive fault detection, and autonomous system management. Technical Specifications <table><tr><th>Feature</th><th>Specification</th></tr><tr><td>Product ID</td><td>BCAN-2019AI</td></tr><tr><td>Loading System</td><td>Chain and Pulley Type (Mechanical)</td></tr><tr><td>Hub Motor</td><td>1200 W</td></tr><tr><td>Battery</td><td>48 V, 50 Ah Li-Ion</td></tr><tr><td>Smart BMS</td><td>13S with Android App connectivity</td></tr><tr><td>Motor Controller</td><td>24-tube, 50 A</td></tr><tr><td>Throttle</td><td>With integrated data logger / screen</td></tr><tr><td>Data Acquisition</td><td>Integrated with i3 computer system, AI-enabled analytics module</td></tr><tr><td>Interface</td><td>Keyboard and Mouse included, AI dashboard software</td></tr><tr><td>Mechanical Integration</td><td>Workbench with full cabinet and platform</td></tr><tr><td>Vehicle Simulation</td><td>Steering, braking, and acceleration systems included</td></tr><tr><td>Safety</td><td>Operational and emergency switches</td></tr></table> Advanced Features with AI Integration • Real-Time Battery Health Monitoring: AI algorithms predict potential cell failures, detect anomalies, and generate alerts • Intelligent Charge/Discharge Management: AI optimizes battery usage and longevity under varying load conditions • Predictive Fault Diagnostics: Machine learning models analyze historical and real-time data to predict failures before they occur • Enhanced CAN Data Analytics: AI processes CAN network data for trend analysis, anomaly detection, and performance prediction • Automated Parameter Tuning: AI suggests optimal safety cutoffs, performance thresholds, and balancing strategies • Visualization & Reporting: AI-assisted graphs and dashboards provide actionable insights from battery and motor data Dual-Mode Monitoring: Desktop application and Android app with AI insights and predictive analytics	Feature	Specification	Product ID	BCAN-2019AI	Loading System	Chain and Pulley Type (Mechanical)	Hub Motor	1200 W	Battery	48 V, 50 Ah Li-Ion	Smart BMS	13S with Android App connectivity	Motor Controller	24-tube, 50 A	Throttle	With integrated data logger / screen	Data Acquisition	Integrated with i3 computer system, AI-enabled analytics module	Interface	Keyboard and Mouse included, AI dashboard software	Mechanical Integration	Workbench with full cabinet and platform	Vehicle Simulation	Steering, braking, and acceleration systems included	Safety	Operational and emergency switches	
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Safety	Operational and emergency switches																											
2.	4W EV Battery Pack Simulator Test Bench (Prototyping DIY and Monitoring) Overview The 4W EV Battery Pack Simulator Test Bench is a comprehensive laboratory setup designed to Prototype, simulate, test, and analyser the performance of an electric vehicle’s 4-wheeler battery pack system, including its BMS, motor controller, drive train, and charging functionalities. It provides real-time monitoring, fault diagnosis, and data acquisition for training and R&D applications. Major Components Battery Pack Simulator (48V, 50Ah LFP Cells) ○ Type: LiFePO₄ (LFP) cells ○ Voltage: 48V nominal ○ Capacity: 24 Cells String on the Display board ○ Modular design for multiple cell configuration (up to 16 cells)	01																										

	- Equipped with passive cell balancing connections Battery Management System (BMS) Trainer - Integrated with Bluetooth connectivity and PC interface - Real-time monitoring of cell voltage, SOC, SOH, and temperature - Safety protections: overcharge, over-discharge, overcurrent, and short circuit - Built-in alarm and buzzer indicators 4-Wheeler Drive Train Setup - Includes reconditioned 4W open chassis with: - PMSM/BLDC Motor (≥ 5 kW) - Differential and axle assembly - Dual wheel set with rollers for load simulation - Motor controller integrated with accelerator and braking simulation Data Acquisition and Display 21” monitor with inbuilt software for live data visualization - Parameters displayed: voltage, current, speed, torque, battery status, and temperature - Data logging capability via USB/Bluetooth interface Charging and Discharging System - Integrated EV charger compatible with 48V system - Load bank or mechanical loading arrangement for discharge testing - Provision to simulate different charging conditions Control & Monitoring Panel - Equipped with: - Ammeter, Voltmeter (digital) - Indicators for each cell - Switches and connectors for cell testing - Fault simulation options for BMS and motor controller - Clear labelling and color-coded wiring Mechanical Structure - Heavy-duty MS frame with powder coating - Caster wheels with locking arrangement for mobility - Modular tabletop design for maintenance and demonstration																			
	Technical Specifications <table><tr><th>Parameter</th><th>Specification</th></tr><tr><td>Rated Voltage</td><td>48V DC</td></tr><tr><td>Battery Type</td><td>LiFePO₄ (LFP)</td></tr><tr><td>Battery Capacity</td><td>≥ 24 Strings in Series / Cell Slot for Making Different Battery prototype</td></tr><tr><td>Motor Type</td><td>PMSM / BLDC</td></tr><tr><td>Motor Power</td><td>≥ 5 kW</td></tr><tr><td>Vehicle Speed (Simulated)</td><td>25–30 km/h</td></tr><tr><td>Display</td><td>Digital Panel + 21” Monitor</td></tr><tr><td>Data Interface</td><td>USB / Bluetooth</td></tr></table>	Parameter	Specification	Rated Voltage	48V DC	Battery Type	LiFePO ₄ (LFP)	Battery Capacity	≥ 24 Strings in Series / Cell Slot for Making Different Battery prototype	Motor Type	PMSM / BLDC	Motor Power	≥ 5 kW	Vehicle Speed (Simulated)	25–30 km/h	Display	Digital Panel + 21” Monitor	Data Interface	USB / Bluetooth	
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	<table><tr><td>Protections</td><td>OVP, UVP, OCP, OTP, SCP</td></tr><tr><td>Input Supply</td><td>230V AC ±10%, 50 Hz</td></tr><tr><td>Software</td><td>PC-based data monitoring & analysis</td></tr><tr><td>Mechanical Load</td><td>Roller type for real-wheel loading</td></tr><tr><td>Structure</td><td>MS frame with powder coating</td></tr></table>	Protections	OVP, UVP, OCP, OTP, SCP	Input Supply	230V AC ±10%, 50 Hz	Software	PC-based data monitoring & analysis	Mechanical Load	Roller type for real-wheel loading	Structure	MS frame with powder coating									
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Mechanical Load	Roller type for real-wheel loading																			
Structure	MS frame with powder coating																			
	Features - Real Time Battery Pack Prototyping by Making Different Combination. - Real-time testing of 4W EV powertrain and battery system - Demonstration of energy flow from battery to motor and wheels - Safe learning of EV architecture with fault diagnosis - Simulated charging and regenerative braking testing - Integrated BMS with balancing and monitoring function - Ideal for skill development, ITI, Polytechnic, and Engineering Institutes - Plug-and-play design with modular connections - Compact, mobile, and industrial-grade finish																			
	Standards and Compliance - Complies with safety standards for low-voltage EV systems - CE/ISO certified components - Educational equipment designed per NSQF Level 4–6 training modules																			
3.	Battery Testing Equipment Integrated with Artificial Intelligence (Battery Pack Testing) The Battery Testing Equipment is a fully automated, programmable digital test bench designed for testing, charging, discharging, and analyzing various types of rechargeable battery packs used in Electric Vehicles and Energy Storage Systems. It supports Lithium-ion, LiFePO₄, and enables both manual (panel) and software-controlled operations, providing precise control, reliable protection, and comprehensive data acquisition for laboratory, R&D, and educational use.	01																		
	Technical Specifications <table><tr><td>Parameter</td><td>Specification</td></tr><tr><td>Model Type</td><td>Battery Charger / Discharger Equipment (1 Channel)</td></tr><tr><td>Display Type</td><td>Digital LCD Panel</td></tr><tr><td>Voltage Range</td><td>9V – 99V</td></tr><tr><td>Maximum Voltage</td><td>99V</td></tr><tr><td>Charge Current Range</td><td>0.5A – 20A (adjustable)</td></tr><tr><td>Discharge Current Range</td><td>0.5A – 40A (adjustable)</td></tr><tr><td>Applicable Batteries</td><td>Lead-Acid / Lithium-ion / LiFePO₄ Battery Packs</td></tr><tr><td>Input Power</td><td>AC 200V – 245V, 50/60Hz</td></tr></table>	Parameter	Specification	Model Type	Battery Charger / Discharger Equipment (1 Channel)	Display Type	Digital LCD Panel	Voltage Range	9V – 99V	Maximum Voltage	99V	Charge Current Range	0.5A – 20A (adjustable)	Discharge Current Range	0.5A – 40A (adjustable)	Applicable Batteries	Lead-Acid / Lithium-ion / LiFePO ₄ Battery Packs	Input Power	AC 200V – 245V, 50/60Hz	
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	Power Consumption 900 W Charge Cut-off Voltage 9V – 99V (0.1V stepping) Discharge Cut-off Voltage 9V – 99V (0.1V stepping) Voltage Accuracy $\pm 0.03V$ Current Accuracy $\pm 0.03A$ Control Channels Independent Channel (1CH) Communication Interface LAN (TCP/IP Protocol) Control Mode Independent / PC Software Control Noise Level < 76 dB Protection Grade IP20 Insulation Between Channels AC 1000V / 2 min Normal Ambient Operating Temperature 0°C – 40°C Storage Temperature -10°C – 50°C Operating Humidity $\leq 70\% \text{ RH}$ (non-condensing) Storage Humidity $\leq 80\% \text{ RH}$ (non-condensing)	
	Functional Features Charging Functions ○ Constant Current / Constant Voltage (CC/CV) Charging Mode ○ Adjustable charge current (0.5A – 20A) ○ Charge cut-off by voltage, current, time, or capacity Discharging Functions ○ Constant Current Discharge Mode ○ Adjustable discharge current up to 40A ○ Cut-off by voltage, current, time, or capacity Cycle Testing ○ Auto cycle charge/discharge (1–99 cycles) ○ Suitable for battery life and aging tests Control and Operation ○ Dual operation modes: Panel Operation and PC Software Control ○ “START” and “SET” knob interface for easy setup ○ All voltage/current parameters saved automatically ○ Intelligent speed fan with power-off delay for cooling ○ Polarity protection and anti-reverse connection Data and Communication ○ Real-time monitoring and graphical data visualization ○ Data export in Excel format ○ Time/voltage/current-based data sampling ○ LAN communication for remote control and multi-device management ○ Compatible with Windows XP/7/8/10 Safety & Protection ○ Power-off memory and auto-restart function ○ Reverse connection protection ○ Over-voltage, Over-temperature, Over-current, and Short-circuit protection	

	Build and Design ○ Modular hardware design for easy maintenance ○ Rugged and compact design suitable for lab or production testing ○ Clear LCD display with real-time status and test parameters															
	AI Configuration Battery Testing Equipment with PC Integration and Artificial Intelligence Features • Integrated AI-powered battery analytics software for: ○ Predictive capacity degradation analysis ○ Cycle life prediction and comparison ○ Anomaly detection during charge/discharge ○ Automatic report generation and parameter optimization • PC Configuration: ○ Intel i5 / i7 Processor ○ 8GB RAM / 512GB SSD ○ 21” HD Display ○ Pre-installed licensed software and communication drivers															
4.	Li-Ion Cylindrical & Prismatic EV Cell Capacity Tester – 5V, 10A, 8 ChannelAI-Integrated Overview The AI-Integrated Cylindrical & Prismatic EV Cell Capacity Tester is a multi-channel, precision-controlled system designed to test, analyze, and grade various lithium-based and nickel-based rechargeable cells. It performs charge-discharge tests, capacity grading, internal resistance measurement, balancing, and data analysis with high accuracy. This equipment is suitable for R&D labs, EV battery assembly centers, cell testing stations, and academic training facilities.	01														
	Application Range • Cylindrical and prismatic lithium-ion cells • Ni-MH and Ni-CD batteries • Capacity testing, charge/discharge cycle life testing • Capacity matching, regeneration, and balance charging • Internal resistance and temperature analysis • Data logging and AI-based performance prediction															
	Technical Specifications <table><tr><td>Parameter</td><td>Specification</td></tr><tr><td>Channels</td><td>8 Independent Channels</td></tr><tr><td>Applicable Cell Types</td><td>Cylindrical & Prismatic Li-ion, Ni-MH, Ni-CD</td></tr><tr><td>Charging Voltage Range</td><td>0 – 5V</td></tr><tr><td>Discharge Voltage Range</td><td>5V – 0.7V</td></tr><tr><td>Charging Current Range</td><td>0.02A – 10A</td></tr><tr><td>Discharge Current Range</td><td>0.02A – 10A</td></tr></table>	Parameter	Specification	Channels	8 Independent Channels	Applicable Cell Types	Cylindrical & Prismatic Li-ion, Ni-MH, Ni-CD	Charging Voltage Range	0 – 5V	Discharge Voltage Range	5V – 0.7V	Charging Current Range	0.02A – 10A	Discharge Current Range	0.02A – 10A	
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Charging Current Range	0.02A – 10A															
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	Voltage Accuracy $\pm 0.05\%$ FS $\pm 0.05\%$ RD (1mV resolution) Current Accuracy $\pm 0.05\%$ FS $\pm 0.05\%$ RD (1mA resolution) Power Output per Channel $\leq 450\text{W}$ Input Power Supply AC 220V $\pm 10\%$, 50Hz Input Impedance $\geq 10\text{M}\Omega$ Current Response Time $\leq 50\text{ms}$ (hardware response) Time Setting Range 0 – 9999 hours (resolution: 0.1s) Continuous Working Capability 24x7 continuous operation (365 days) Noise Level $< 60\text{ dB}$ Operating Temperature $0^{\circ}\text{C} - 40^{\circ}\text{C}$ Storage Temperature $-10^{\circ}\text{C} - 50^{\circ}\text{C}$ Humidity (Operating / Storage) $\leq 70\%$ RH / $\leq 80\%$ RH (no condensation) Communication Interface RJ45 Network (LAN) Control System PC Software with AI Integration Circuit Structure Modular design for easy maintenance Protection Class Overvoltage, overcurrent, short-circuit, reverse polarity, temperature protection	
	Functional Features Charging Modes • Constant Current (CC) • Constant Voltage (CV) • Constant Current–Constant Voltage (CC–CV) • Constant Power Charging Discharging Modes • Constant Current • Constant Voltage • Constant Power Discharge Cut-off Conditions • Voltage, current, time, capacity, or temperature-based cutoff Recording & Data Sampling • Multi-level data recording: charge, discharge, stationary, global time • Sampling frequency: 100ms–100s; single box sampling: $\sim 10\text{ms}$ • Real-time curve plotting of voltage, current, capacity, and temperature • Local storage + cloud/MES database integration Cycle and Work Steps • Up to 100 programmable steps per sequence • 10 nested loop layers for complex test procedures • Adjustable step parameters: duration, current, voltage, and temperature AI-Integrated Functions	

	- Predictive analytics for cell degradation and cycle life - AI-based classification and capacity sorting (Grade A/B/C) - Automatic anomaly detection and alert for abnormal voltage/current/temp - Smart test optimization and parameter suggestion based on historical data - Auto report generation with Pass/NG classification	
	Software and Data Management - User-friendly interface supporting manual or automatic test sequences - Supports MES / database connectivity for production integration - Real-time monitoring of all channels on a single dashboard - Data export in Excel or CSV format - Local + Cloud backup of test data - Multi-device management through LAN network - Manual and automatic test recovery in case of communication or power failure - Barcode and QR code scanning for battery ID traceability - Customizable test templates and report formats	
	Protection & Safety Features - Reverse polarity protection - Overvoltage / undervoltage / overcurrent / undercurrent protection - Over-temperature and short-circuit protection - Automatic data recovery after power or communication loss - Audible and visual fault alarms - Channel-level isolation for independent operation	
	Design and Construction - Modular channel structure for easy serviceability - Compact design suitable for bench or rack mounting - Industrial-grade connectors and protection sockets - Optional built-in temperature monitoring system (VCELL / TCELL) - Optional auxiliary 16-channel temperature sensing module	
	Additional Features - MES integration for production traceability - Parallel channel configuration (customizable) - Built-in temperature chamber (optional for controlled environment) - AI dashboard for predictive battery grading analytics	
5.	High-Performance Testing Equipment – IR Testing Integrated with AI & Computer System Model: High Precision Battery IR Tester for EV Applications (As per Industry Standards) Key Features: - Fully automated testing of xEV cells or mid-sized battery packs up to 300 V Measurement frequency: 1 kHz $\pm$ 0.2 Hz Resistance measurement ranges: 31.000 mΩ, 1 $\mu\Omega$, 100 mA 310.00 Ω, 10 mΩ, 10 μA Basic accuracy: $\pm$ 0.5 % rdg $\pm$ 5 dgt Voltage measurement ranges: 6.00000 V (resolution 10 μV)	01

	○ 60.0000 V (resolution 100 μV) • Response time: 10 ms • Sampling periods: 4 ms, 12 ms, 35 ms, 150 ms • Allowable total line resistance (within accuracy): ○ 3 mΩ, 30 mΩ, 300 mΩ, 3 Ω $\rightarrow$ 4 Ω, 30 Ω, 30 Ω • Open terminal voltage: 25 V, 7 V, 4 V peak • Comparator: Hi / IN / Lo • Statistical calculation capacity: Max 30,000 data points • Average count: Selectable 2 to 16 times • Memory storage: 400 records • Applicable standards: ○ Safety: EN 61010 ○ EMC: EN 61326 Class A Additional Integration: • Integrated AI-based analysis for defect detection and predictive diagnostics • Computer interface for real-time monitoring, report generation, and data logging • Compatible with EV cell R&D and quality assurance laboratories	
6.	EV Battery Cell Balancer – Bluetooth Enabled, Integrated with IoT Model: Active Balancer Equalizer 24S (12–72V, 4A Max) Suitable For: NMC / LFP Lithium Battery Packs Overview: A high-performance, intelligent battery pack management system designed for large-capacity lithium battery series. This advanced equalizer employs supercapacitor-based active energy transfer technology, ensuring precise and efficient balancing across cells. Integrated Bluetooth and IoT connectivity enable real-time monitoring, diagnostics, and control through mobile and cloud platforms. Key Features: • Supported Battery Configuration: 2–24 cells battery packs • Compatibility: Supports all lithium-based batteries available in the market • Balancing Type: Active energy transfer using supercapacitor technology • Balancing Accuracy: $\Delta V \leq 5$ mV between cells • Cell Voltage Measurement Range: 1 V – 5 V • Measurement Accuracy: ± 1 mV • Adjustable Balancing Current: 0.3 A to 4 A (extendable up to 10 A model) • Voltage Acquisition & Equalization: Real-time, simultaneous multi-cell management • Bluetooth Connectivity: Built-in module with mobile app support (Android & iOS) • IoT Integration: Cloud data logging, live cell health monitoring, and remote alerts • Wiring Error Detection: Balance-wire resistance detection to identify faults early Operating Conditions: • Operating Power Supply: 25 V – 100 V (Battery power or external source) • Power Consumption: ○ Working Mode: 10 mA @ 100 V ○ Idle Mode: 6 mA @ 100 V • Operating Temperature: -20°C to +70°C	01
7.	Battery Spot Welding Machine for Prototyping with Sample Modules & Safety Gears Model: High-Frequency Inverter Type (Microcomputer Controlled) Power Rating: 1500A, 5 kW Capacity Application: Lithium-ion / Ni-MH / Ni-CD Cell Tab Welding for Prototype and Small-Scale Battery Pack Assembly Overview The Battery Spot Welding Machine for Prototyping is a microcomputer-controlled, high-frequency inverter-based system designed for precise spot welding of EV battery cells. It supports R&D, prototyping, and training applications and ensures repeatable weld quality	01

	on nickel, copper, or aluminum interconnects. The system includes sample battery modules and complete operator safety gear, making it ideal for educational or demonstration purposes.																																			
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8.	Liquid Cooled Lithium-Ion Battery 72V / 96V Battery Simulator with DC Load	01																																		

Overview The Liquid Cooled Lithium-Ion Battery Simulator with DC Load is an advanced laboratory-grade test and simulation setup designed to emulate 72V and 96V EV battery packs under various load and charging/discharging conditions. It provides programmable output characteristics, real-time data acquisition, and liquid cooling for thermal stability — making it ideal for EV drivetrain, motor controller, and BMS validation testing. Integrated with AI and IoT-based monitoring, this simulator supports both manual and computer-controlled operation, enabling realistic behavior replication of an actual EV battery pack in training or R&D environments.																																																	
Functional Description The simulator functions as a programmable DC power source that replicates the voltage, current, and dynamic response of a lithium-ion EV battery (NMC / LFP type). It includes an integrated DC electronic load for testing charge/discharge cycles, as well as a liquid cooling system to maintain optimal operating temperature during continuous operation. The simulator can interface with EV controllers, motor drives, or BMS systems for system integration and performance evaluation.																																																	
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	Data Logging Real-time voltage, current, temperature, SOC, SOH Data Export CSV / Excel / Cloud Dashboard Power Input 230V / 415V AC $\pm 10\%$, 50Hz Operating Temperature 0°C – 45°C Storage Temperature -10°C – 55°C Ambient Humidity $\leq 75\%$ RH non-condensing Dimensions (Approx.) 1000 mm $\times$ 600 mm $\times$ 900 mm Weight ~80–120 kg (depending on rating)	
	Major Components 1. Programmable DC Source & Load Module 2. Liquid Cooling Unit (Chiller + Radiator + Pump) 3. Temperature Monitoring System 4. Control Interface 5. BMS Interface Port (CAN/UART) 6. Computer Software with Real-Time Graphs 7. AI & IoT Monitoring Dashboard 8. Safety Protection & Emergency Stop System 9. Test Leads & Connectors	
	Functional Features • Emulates dynamic battery behavior for EV motor controllers and BMS testing • Integrated DC load enables discharge and regenerative testing • Real-time monitoring of Voltage, Current, Power, and Temperature • Adjustable internal resistance and SOC/SOH simulation • AI-assisted diagnostics and automatic fault alerts • Remote data access and cloud report generation • Liquid cooling for long-duration high-current testing • Multi-protocol communication for external device interface • Data visualization and exportable reports for training or research	

Annexure-III EV Charging Infrastructure Training & Research Setup [Technology Division-3]		
S.NO	Item/Equipment Name	Qt.
1.	EV Charging Station Training Setup with Fault Diagnosis workbench (Specially Customized for Education, Training & Research) Overview: This advanced EV Charging Station Training Setup is designed to simulate and demonstrate real-world EV charging infrastructure using a multi-port E-Fill charger . The setup integrates three charging ports (CCS2 DC, Type-2 AC, and Bharat AC001) with vehicle and battery emulation , OCPP backend communication , and open protocol access for experimentation and R&D. It enables students and researchers to study charging control logic, safety interlocks, energy flow, communication protocols, and payment system integration in a hands-on manner.	01

Technical Specifications	
Power & Electrical	
Parameter	Specification
Input Voltage	415 V $\pm$ 10%, 3 Phase, 50 Hz
Input Current	~16 A per phase
Total Output Power	30 kW (minimum)
Charger Type	3-Port Smart Charger
Output Ports	CCS2 (DC Fast) + Type-2 (AC) + Bharat AC001
Output Voltage Range	DC: 200–1000 V AC: 230 V $\pm$ 10%
Output Power (per port)	CCS2 DC: 7.5 kW AC Type-2: 3.3 kW AC001: 3.3 kW
Efficiency	$\geq$ 95%
Power Factor	$\geq$ 0.98
Communication Interface	Ethernet / Wi-Fi / 4G / RS-485
OCPP	OCPP 1.6 J & 2.0.1 (Upgradable)
EV Emulator	
Parameter	Specification
Type	Multi-Mode EV Emulator for CCS2 / Type-2 / AC001
Battery Configuration	Selectable: Li-ion / LFP / NiMH
Nominal Voltage	48 V–400 V (configurable)
Capacity Simulation	10 Ah–100 Ah
Protocol Support	IEC 61851-23 / 24, DIN 70121, ISO 15118 (low-level)
Signals	Control Pilot (CP), Proximity Pilot (PP), Protective Earth (PE)
Communication	Simulated EV CAN, PLC & PWM modulation
Features	Display of charging voltage, current, SOC, CP & PP signal waveform
Communication & Control	
Protocols: CCS2 Protocol: IEC 61851-23 & 24 compliant OCPP 1.6 J: open-source backend connectivity via local server ISO 15118: optional firmware upgrade for Plug & Charge study Control & Interface: - Start/Stop control buttons	

	○ CP/PP status LEDs ○ Onboard HMI touchscreen (for visualization) Setup Type: Open Charging Station each Component Mounted Separately with Testing Nodes in Circuit.																																							
2.	AC Intelligent Charging Station Simulator with Software The AC Intelligent Charging Station Simulator is a fully integrated training, testing, and simulation platform designed for education, research, and product development in the field of Electric Vehicle (EV) charging infrastructure. It replicates a real AC charging station with open communication protocols, dynamic load simulation, and a PC-based monitoring & control software interface. The system allows learners to study EVSE–EV communication, OCPP cloud connectivity, load management, energy metering, and smart charging algorithms. Power & Electrical <table><tr><th>Parameter</th><th>Specification</th></tr><tr><td>Input Voltage</td><td>415 V ±10%, 3 Phase, 50 Hz</td></tr><tr><td>Input Current</td><td>~16 A per phase</td></tr><tr><td>Total Output Power</td><td>3 kW</td></tr><tr><td>Charger Type</td><td>3-Port Smart Charger</td></tr><tr><td>Output Ports</td><td>CCS2 (DC Fast), Type-2 (AC), Bharat AC001</td></tr><tr><td>Output Voltage Range</td><td>DC: 200–1000 V AC: 230 V ±10%</td></tr><tr><td>Output Power (per port)</td><td>CCS2 DC: 7.5 kW AC Type-2: 3.3 kW AC001: 3.3 kW</td></tr><tr><td>Efficiency</td><td>≥ 95%</td></tr><tr><td>Power Factor</td><td>≥ 0.98</td></tr><tr><td>Communication Interface</td><td>Ethernet / Wi-Fi / 4G / RS-485</td></tr><tr><td>OCPP</td><td>OCPP 1.6 J & 2.0.1 (Upgradable)</td></tr></table> EV Emulator <table><tr><th>Parameter</th><th>Specification</th></tr><tr><td>Type</td><td>Multi-Mode EV Emulator for CCS2 / Type-2 / AC001</td></tr><tr><td>Battery Configuration</td><td>Selectable: Li-ion / LFP / NiMH</td></tr><tr><td>Nominal Voltage</td><td>48 V–400 V (configurable)</td></tr><tr><td>Capacity Simulation</td><td>10 Ah–100 Ah</td></tr><tr><td>Protocol Support</td><td>IEC 61851-23 / 24, DIN 70121, ISO 15118 (low-level)</td></tr><tr><td>Signals</td><td>Control Pilot (CP), Proximity Pilot (PP), Protective Earth (PE)</td></tr></table>	Parameter	Specification	Input Voltage	415 V ±10%, 3 Phase, 50 Hz	Input Current	~16 A per phase	Total Output Power	3 kW	Charger Type	3-Port Smart Charger	Output Ports	CCS2 (DC Fast), Type-2 (AC), Bharat AC001	Output Voltage Range	DC: 200–1000 V AC: 230 V ±10%	Output Power (per port)	CCS2 DC: 7.5 kW AC Type-2: 3.3 kW AC001: 3.3 kW	Efficiency	≥ 95%	Power Factor	≥ 0.98	Communication Interface	Ethernet / Wi-Fi / 4G / RS-485	OCPP	OCPP 1.6 J & 2.0.1 (Upgradable)	Parameter	Specification	Type	Multi-Mode EV Emulator for CCS2 / Type-2 / AC001	Battery Configuration	Selectable: Li-ion / LFP / NiMH	Nominal Voltage	48 V–400 V (configurable)	Capacity Simulation	10 Ah–100 Ah	Protocol Support	IEC 61851-23 / 24, DIN 70121, ISO 15118 (low-level)	Signals	Control Pilot (CP), Proximity Pilot (PP), Protective Earth (PE)	01
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	<table><tr><td>Communication</td><td>Simulated EV CAN, PLC & PWM modulation</td></tr><tr><td>Features</td><td>Display of charging voltage, current, SOC, CP & PP signal waveform</td></tr><tr><td colspan="2">Communication & Control</td></tr><tr><td>Protocols</td><td>Specification</td></tr><tr><td>CCS2 Protocol</td><td>IEC 61851-23 & 24 compliant</td></tr><tr><td>OCPP 1.6 J</td><td>Open-source backend connectivity via local server</td></tr><tr><td>ISO 15118</td><td>Optional firmware upgrade for Plug & Charge study</td></tr><tr><td>Control & Interface</td><td>Specification</td></tr><tr><td>Start/Stop control buttons</td><td>Yes</td></tr><tr><td>CP/PP status LEDs</td><td>Yes</td></tr><tr><td>Onboard HMI touchscreen</td><td>For visualization</td></tr><tr><td>Laptop Interface</td><td>Data logging, waveform & protocol analysis</td></tr></table>	Communication	Simulated EV CAN, PLC & PWM modulation	Features	Display of charging voltage, current, SOC, CP & PP signal waveform	Communication & Control		Protocols	Specification	CCS2 Protocol	IEC 61851-23 & 24 compliant	OCPP 1.6 J	Open-source backend connectivity via local server	ISO 15118	Optional firmware upgrade for Plug & Charge study	Control & Interface	Specification	Start/Stop control buttons	Yes	CP/PP status LEDs	Yes	Onboard HMI touchscreen	For visualization	Laptop Interface	Data logging, waveform & protocol analysis					
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AC Charging Standards (Any 3)																														

Connector Type	Description	Typical Use
Type-1 (SAE J1772)	5-pin single-phase AC connector	USA / Japan AC charging
Type-2 (IEC 62196 / Mennekes)	7-pin single/3-phase AC connector	Europe, India (AC slow & fast)
Bharat AC001 Socket	230V AC, 15A Type-2 (Indian Standard)	Indian AC chargers
GB/T AC	Chinese AC standard, 7-pin	China domestic EVs
DC Fast Charging Standards (Any 3)		
Connector Type	Description	Typical Use
CCS Type-1	Combo Connector (AC + DC pins)	North America
CCS Type-2	Combo Connector (Type-2 + DC)	Europe, India (DC fast charging)
CHAdemo	10-pin round DC connector	Japan (Nissan Leaf, etc.)
GB/T DC	Chinese DC fast charging standard	China (EV buses, cars)
Tesla Proprietary Connector	Integrated AC/DC connector	Tesla Superchargers (optional)
Features		
- Real connectors mounted on a labelled display board - Cross-sectional diagram for pin arrangement (printed or LED-lit) - LED indication for Power, Control Pilot (CP), and Proximity Pilot (PP) lines (optional live simulation) - Protocol identification (IEC 61851, DIN 70121, ISO 15118, GB/T, CHAdemo) - QR code linked to datasheets or video tutorials (optional) - Optional interactive touchscreen interface showing: - Connector type info - Charging level (AC/DC, Level 1/2/3) - Country compatibility - Typical charging time		

Annexure–IV AR/VR based Electric Vehicle Training [Technology Division–4]																										
S.NO.	Item /Description																									
01	a) AR/VR-Based Electric Vehicle Training Module (World’s Most Advanced AR/VR-Based EV Training Simulator) AR/VR Setup Configuration for Electric Vehicle Training Modules Hardware Requirements <table><tr><td>Component</td><td>Specification / Description</td><td>Quantity / Notes</td></tr><tr><td>VR Headset</td><td>Meta Quest 3</td><td>1 per trainee / shared setups possible</td></tr><tr><td>PC Workstation</td><td>High-end Desktop: Intel i9 / 64GB RAM / NVIDIA RTX 4080 GPU or equivalent</td><td>1 per VR station</td></tr><tr><td>Tracking Sensors</td><td>Base stations for room-scale tracking (HTC)</td><td>As per headset requirement</td></tr><tr><td>Controllers / Haptic Gloves</td><td>Hand controllers for VR or haptic gloves for tactile feedback</td><td>2 per station</td></tr><tr><td>Projection / AR Screens</td><td>Optional AR projection for group observation</td><td>1 per lab</td></tr><tr><td>Networking</td><td>Gigabit LAN / Wi-Fi 6 for multi-user training & data logging</td><td>As required</td></tr><tr><td>Power Backup</td><td>UPS for PC & VR</td><td>1 per workstation</td></tr></table>	Component	Specification / Description	Quantity / Notes	VR Headset	Meta Quest 3	1 per trainee / shared setups possible	PC Workstation	High-end Desktop: Intel i9 / 64GB RAM / NVIDIA RTX 4080 GPU or equivalent	1 per VR station	Tracking Sensors	Base stations for room-scale tracking (HTC)	As per headset requirement	Controllers / Haptic Gloves	Hand controllers for VR or haptic gloves for tactile feedback	2 per station	Projection / AR Screens	Optional AR projection for group observation	1 per lab	Networking	Gigabit LAN / Wi-Fi 6 for multi-user training & data logging	As required	Power Backup	UPS for PC & VR	1 per workstation	10 Setup
Component	Specification / Description	Quantity / Notes																								
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02	Software Requirements (Software with perpetual license) <table><tr><td>Software Module</td><td>Description</td></tr><tr><td>VR Simulation Software</td><td>Modules for Battery Pack, Electric 3-Wheeler, Hub Motor, Mid-Drive Motor, 4-Wheeler Assembly</td></tr><tr><td>Physics Engine</td><td>Realistic simulation of torque, weight, and electrical properties</td></tr><tr><td>Measurement Tools Integration</td><td>Virtual digital multimeter, clamp meter, megohmmeter</td></tr><tr><td>Scenario Management</td><td>Training module, assessment, and reporting system</td></tr><tr><td>Remote Management</td><td>License management, remote education, tracking module</td></tr><tr><td>Result Reporting</td><td>PDF generation with scores, timing, and success rate</td></tr><tr><td>AI Digital Human Trainer</td><td>Virtual instructor providing guidance, instructions, and real-time feedback</td></tr></table>	Software Module	Description	VR Simulation Software	Modules for Battery Pack, Electric 3-Wheeler, Hub Motor, Mid-Drive Motor, 4-Wheeler Assembly	Physics Engine	Realistic simulation of torque, weight, and electrical properties	Measurement Tools Integration	Virtual digital multimeter, clamp meter, megohmmeter	Scenario Management	Training module, assessment, and reporting system	Remote Management	License management, remote education, tracking module	Result Reporting	PDF generation with scores, timing, and success rate	AI Digital Human Trainer	Virtual instructor providing guidance, instructions, and real-time feedback	10 Users								
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AI Digital Human Trainer	Virtual instructor providing guidance, instructions, and real-time feedback																									

	VR Room Informative Display Virtual dashboards displaying scenario progress, safety reminders, and component details VR/AR Training Workstations Layout Battery Pack Assembly Station • Workbench with VR interaction area • Virtual battery pack components (prismatic, cylindrical cells) • Tools: Virtual torque wrench, multimeter, insulated gloves • AI Digital Human Trainer: Step guidance, alerts for incorrect assembly • VR Informative Display: Shows battery cell details, voltage, and assembly sequence Electric 3-Wheeler Assembly Station • Chassis area for virtual assembly • Motor mounting, suspension, wiring harness, battery pack installation • Safety zone with PPE simulation • AI Digital Human Trainer: Real-time instruction and hints • VR Informative Display: Shows assembly progress, torque values, and wiring diagrams Hub Motor Assembly Station • Interactive hub motor disassembly/assembly • Bearing and rotor alignment practice • Torque measurement and wiring simulation • AI Digital Human Trainer: Assists in alignment, warns of safety hazards • VR Informative Display: Displays component specifications and stepwise assembly Mid-Drive Motor Assembly Station • Motor mounting on crankset • Gear alignment and torque testing • Controller wiring and electrical testing • AI Digital Human Trainer: Guides torque application, motor testing, and wiring sequence • VR Informative Display: Shows gear alignment, torque range, and wiring layout Electric 4-Wheeler Part Assembly Station • Chassis, suspension, motor, inverter, battery integration • Wiring harness installation • Dashboard and electronic systems simulation • AI Digital Human Trainer: Supervises assembly, provides troubleshooting hints • VR Informative Display: Real-time component status, system health, and progress tracker Safety & Ergonomics • Virtual Safety Gear: Gloves, helmets, eye protection, foot protection • High Voltage Simulation Alerts: Warns trainees when connecting live components • Emergency Stop: Immediate simulation halt for unsafe actions • Safe Workspace: Clear VR boundaries and tracked floor space Testing & Evaluation Integration • Knowledge Test: Correct selection of PPE and tools	
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	• Hand Skill Test: Assembly/disassembly, tool usage, torque application • Attention Test: Follow sequential tasks and correct usage of consumables • Time-Constrained Tasks: Simulates real-world efficiency • Reporting: Auto-generated PDF reports with trainer/trainee info, scores, and success rate	
	Optional Enhancements • Haptic Feedback Gloves: For realistic touch and torque sensation • Multi-Trainee Collaboration: Multiple VR users in the same virtual space • AR Overlay: For instructors to demonstrate steps in real space using AR screen.	

Annexure V										
EV Design, Innovation & Research Bundle										
[Technology Division–5]										
S.NO.	Item /Description	Qt.								
1.	E-Mobility Software Suite Package for Education & Research <u>ANSYS Multi physics Software Suite for EV Lab</u> (EV center with Perpetual license) • Ansys Academic (Mech) – 01 Research & 25 Teaching Tasks • Ansys Academic CFD– 01 Research & 25 Teaching Tasks • Ansys EM- 01 Research & 25 Teaching Tasks • Ansys HFSS- 01 Research & 25 Teaching Tasks • Ansys 10 ALH subscription (01-year license) <u>Knowledge Development Activity</u> • Curriculum Development & Enrichment • Research & Development initiatives • Student Innovation Center • ANSYS Incubation Program <u>Engagement Program from Partner</u> • Student Development – 2 programs (Max 25 candidates) • Ansys Auth. Partner e- Certification –(Max 50) • Internship Program (for selected candidates) • Access to Ansys Innovation Courses • Industry visit (Total 4 industrial visits) • 01 workshop/webinar per 6 months to attract students	Teaching License – 100 Research License - 6								
2.	System Configuration for E-Mobility Software Suite Workstation / PC Requirements with Mouse and Keyboard and Computer Table <table><tr><td>Component</td><td>Minimum Specification</td></tr><tr><td>Processor (CPU)</td><td>Intel Core i7 12th Gen / AMD Ryzen 7 5800</td></tr><tr><td>Cores / Threads</td><td>8 / 16</td></tr><tr><td>RAM</td><td>32 GB DDR4</td></tr></table>	Component	Minimum Specification	Processor (CPU)	Intel Core i7 12th Gen / AMD Ryzen 7 5800	Cores / Threads	8 / 16	RAM	32 GB DDR4	30 Nos.
Component	Minimum Specification									
Processor (CPU)	Intel Core i7 12th Gen / AMD Ryzen 7 5800									
Cores / Threads	8 / 16									
RAM	32 GB DDR4									

	Storage	1 TB SSD	
	Graphics Card (GPU)	NVIDIA RTX A2000 / GeForce RTX 3060	
	Monitor	24-inch FHD	
	Operating System	Windows 11 Pro 64-bit	
	Network	Gigabit Ethernet / Wi-Fi	
	USB Ports	Minimum 4	
	Power Supply	650 W	
	UPS / Backup	1 KVA, 30 min backup	

**** The quantity specified in this RFP is subject to variation of up to $\pm 25\%$, depending upon the actual requirement of DTE&T.**

7. Deliverable and Payment Schedule:

The selected company will have the following deliverables: -

SL No	Deliverable	Time Line	Amount Payable
1	Milestone 1: i) Pre-Delivery inspection of sample equipment. ii) Delivery of the material, equipment, PPE and Tools & Tackles in good condition at the CoEs. iii) Visual inspection of equipment and certify by the Principal of the CoEs.	Within 4 months of signing the Contract Agreement (MoA)	40% of the 'Total Order Value (Base Price)' with 18% GST on the Total Base Order Value, within 30 days of receipt of the invoices.
2	Milestone 2: i) Complete setup of CoEs including Civil and Electrical works (interior design, electrical cabling and infrastructure work etc.) ii) Installation & Commissioning to be completed of all equipment. iii) Inspection and testing of equipment for the Centre of Excellences and stock entry. iv) Submission of safety certificates (if any) from competent authorities, supply of Machine Consumables, safety equipment etc. Complete setup of the CoEs.	Within 6 months of signing the Contract Agreement (MoA)	40% of the 'Total Order Value' within 30 days of complete setup of the CoEs.
3	Milestone 3: i) Completion of the Handholding period (three years) ii) Placement opportunities given to the 50% trainees who successfully trained and certified.	Completion of hand-holding training & placement : 1st Year: Within 18 months of signing the Contract Agreement (MoA). 2nd Year: Within 30 months of signing the Contract Agreement (MoA). 3rd Year: Within 42 months of signing the Contract Agreement (MoA).	20% of the 'Total Order Value' will be released in equal 03 (three) installments. 1/3rd of 20% of the 'Total Order Value' after completion of every Year's hand-holding training, certification and placement opportunities provided.
4	Milestone 4: CoE wise Comprehensive Annual Maintenance Cost (CAMC) (if any) for 3 (three) years immediately after the date of expiry of comprehensive warranty for 60 months for the equipment/machines of each CoEs.	Payment shall be released annually on completion of CAMC subject to satisfactory performance and due recommendation from concerned principal/Head of institute.	100% of the annual awarded value within 30 days of submission of Tax invoice along with certification from the Principal of consignee institute.

Other Conditions:

- No Advanced Payment will be given to the selected bidder.
- Payment for 'Milestone 1' & 'Milestone 2' will be done after inspection from nominated technical experts or 3rd Party Agency/consultants/advisors appointed by DTE&T and satisfactory reports from them.

8. SECTION IV: Technical Bid Submission Forms (Cover-1)

TECH -1

COVERING LETTER

(ON BIDDERS LETTER HEAD)

[Location, Date]

To

**The Director
Directorate of Technical Educational and Training, Odisha
Killa Maidan, Buxi Bazar, Kataka– 753001**

**Sub: “RFP for establishment of CoE in Electric Vehicle Technology at Govt. ITIs of Odisha”.
[TECHNICAL BID]**

Dear Sir,

I/We (Name of the Bidder) hereby submit our Proposal in response to notice inviting RFP date and RFP document no.....and confirm that:

1. With reference to your RFP document dated, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our Bid. The Bid is unconditional and unqualified.
2. I/We acknowledge that the DTE&T will be relying on the information provided in the Bid and the documents accompanying the Bid for selection of the Bidder for the aforesaid project(s), and we certify that all information provided therein is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the Bid are true copies of their respective originals.
3. This statement is made for the express purpose of qualifying as a Bidder for the aforesaid Project.
4. I/ We shall make available to the DTE&T any additional information it may find necessary or require to supplement or authenticate the Bid.
5. I/ We acknowledge the right of the DTE&T to reject our Bid without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
6. I/ We certify that in the last three years, we have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award, nor been expelled from any project or contract by any public authority nor have had any contract terminated by any public authority for breach on our part.
7. I/ We declare that:
 - I/ We have examined and have no reservations to the Bidding Documents, including any Addendum issued by the DTE&T;
 - I/We do not have any Conflict of Interest in accordance with Clause 12 of the RFP document;
 - I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in the RFP document, in respect of any tender or request for proposal issued by or any agreement entered into with the DTE&T or any other public sector enterprise or any government,

Central or State; and

- I/ We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 14 of the RFP, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.
8. I/We understand that the DTE&T may cancel the Bidding Process at any time and that the DTE&T is neither bound to accept any Bid that you may receive nor to invite the Bidders to Bid for the Project, without incurring any liability to the Bidders.
9. I/ We agree and undertake to abide by all the terms and conditions of the RFP document.
10. I/ We offer a Bid Security/EMD to the DTE&T in accordance with the RFP document.
11. I/ We agree and understand that the Bid is subject to the provisions of the Bidding Documents. In no case, I/we shall have any claim or right of whatsoever nature if the Project is not awarded to me/us or our Bid is not opened or rejected.
12. I/ We certified that the period of validity of Proposal is till the end of the Contract Agreement period and I/We are quoting for all the services mentioned in the Scope of Work of the RFP.
13. DTE&T, Odisha, may contact the following person for further information regarding this Proposal:

Name and full address of office, Contact No., Email ID, Company Name

In witness thereof, I/we submit this Bid under and in accordance with the terms of the RFP document

Yours sincerely,

Authorized Signatory with Date and Seal:

Name and Designation: _____

Address of the Bidder: _____

TECH -2**Bidder's Organisation (General Details)**

SL No	Description	Full Details
1	Name of the Bidder	
2	Address for communication: Tel: E-mail ID:	
3	Name of the authorized person signing & submitting the bid on behalf of the Bidder: Mobile No.: Email id:	
4	Registration / Incorporation Details Registration No: Date & Year. :	
5	Local office in Bhubaneswar If Yes, please furnish contact details	Yes / No
6	Bid Processing Fee Details Amount:	
7	EMD Details Amount:	
8	PAN Number	
9	Goods and Services Tax Identification Number (GSTIN)	
10	Willing to carry out the assignment as per the scope of work of RFP	YES
11	Accept all the terms and conditions as specified in the RFP	YES

Authorized Signatory with Date and Seal:**Name and Designation:** _____**Address of the Bidder:** _____

TECH -3**Bidder Organisation (Financial Details)**

Financial Information in INR			
Details	FY 2022-23	FY 2023-24	FY 2024-25
Annual Turnover in INR			
<i>Supporting Documents:</i> Audited certified financial statements for the last three (Submission of copies of Income & Expenditure Statement and Balance Sheet for the respective financial years is mandatory along with this form). Provisional Audit report for any of the FYs is not acceptable. <i>Filled in information in this format must have to be jointly certified and sealed by the CA and the authorized representative of the bidder and to be furnished in original along with the technical Bid failing which the Bid will be out rightly rejected.</i>			

Signature and Seal of the Chartered Accountant with Date in original.

Authorized Signatory with Date and Seal:

Name and Designation: _____

Address of the Bidder: _____

TECH - 4

FORMAT FOR POWER OF ATTORNEY

(Notarized copy on Rs. 100 Non-Judicial Stamp Paper)

(Required only if the Signatory is not directly authorized by the Company Board/Governing Body, or Partners. Otherwise, the Board Resolution/Partners Resolution would suffice)

Known all men by these presents, we..... (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms. (name), son/daughter/wife of and presently residing at, who is presently employed with us and holding the position of, as our true and lawful attorney (hereinafter referred to as the “Attorney”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our tender against the Bid document no. [•] dated [•] published by DTET for the “Procurement of Goods – [•]”, including but not limited to signing and submission of all applications, bids and other documents and writings,

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE....., THE ABOVE-NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF 20[•].

For

Witnesses

.....
(Signature, name, designation and address)

1.

2.

Accepted

(Signature)

(Name, Title and Address of the Attorney)

Encl: Board resolution for Authorized signatory

TECH - 5**(BIDDER'S PAST EXPERIENCE DETAILS)****(List of orders/assignments only of similar nature)**

Sl. No.	Name of Buyer/Client, Address with Telephone No, e-mail, Contact Person, Mobile No.	Name of Project	Nature of Project/Goods/ Services and Brief of Project	Project Start Date and End Date	Project Cost/ Contract Value (In Rs.)	Status (Complete/ In Progress/ Delay)	No of students trained and placed, if any
A	B	C	D	E	F	G	
1							
2							
3							
4							
5							

Note: Information not conforming to the above format will be treated as non-responsive. The bidder must enlist their relevant experience for technical marking purpose. Copies of the Work order / Contract Document / Completion Certificate from the previous Clients need to be furnished along with the above information.

Authorized Signatory with Date and Seal:

Name and Designation: _____

Address of the Bidder: _____

TECH - 6

Affidavit for not being blacklisted

<< An affidavit on a non-judicial stamp paper of INR 100/- by Company Secretary/ Authorized Representative and Signatory of the Applicant with his/her dated Sign and duly notarized >>

AFFIDAVIT

(to be executed on INR 100 non-judicial stamp paper and to be duly notarized)

Date: _____

Sub: Tender No. _____

In response to the Tender Document above stated, I/We hereby declare and solemnly swear that our Company/ firm _____ is not banned/blacklisted as on date by any competent court of Law, forum or any State Government or Central Government or their agencies or by any statutory entities or any PSUs.

AND, if at any stage the declaration/statement on oath is found to be false in part or otherwise, then without prejudice to any other action that may be taken, I/We, hereby agree to be treated as a disqualified Bidder for the ongoing Contract.

In addition to the disqualification our concern/entity may be banned/blacklisted.

AND, that I/We, shall have no right whatsoever, to claim for consideration of my/our bid at any stage and the money deposited in the form of EMD shall be liable for forfeiture in full, and the tender, if any to the extent accepted, may be cancelled.

Signature of the Deponent

(Authorized signatory of the Bidder with Seal)

Date:

Place:

TECH -7

To be executed on non-judicial stamp paper of requisite value & to be notarized.

Consortium Agreement

This Consortium Agreement is executed on this _____ day of _____ at between; M/s _____, a company incorporated under (indicate the Company's Act.) and having its registered/principal office at _____ (herein after referred to as "Leader of the Consortium" which expression shall include its legal successors, executors and permitted assigns) on the first part,

and

M/s _____, a company incorporated under _____ (indicate the Company's Act) and having its registered/principal office at _____

(herein after referred to as "First Consortium Partner" which expression shall include its successors, executors and permitted assigns) on the second part,

Each of the above entities shall individually be referred to as "Consortium partner" and collectively as "Consortium".

Whereas, Directorate of Technical Education and Training (DTE&T), Odisha, (under the administrative control of Skill Development & Technical Education Department, Government of Odisha) having its registered office at Killa Maidan, Buxi Bazaar, Kataka-753001, Odisha, India (herein after referred to as the "Purchaser") has floated a tender no. _____ dtd. _____ for _____.

As per the above mentioned tender conditions, Consortium formed among individual entities are allowed to qualify and participate as a bidder as per the Qualification Requirements stipulated in the tender. Towards this purpose, the consortium partners mentioned above hereby joined together to form a consortium. This consortium agreement is entered into by the above mentioned consortium partners for the purpose of submitting the bid against the above mentioned tender to the Purchaser jointly as a bidder to meet the qualifying requirements of the tender, towards execution of contract in case of award of the contract by the Purchaser and furnish performance towards equipment/system as per the conditions of the contract.

NOW, THEREFORE, the above mentioned entities hereby agrees as follows:

1. We, the consortium partners learned and understood the terms and conditions of the tender no. for issued by the Purchaser meeting the qualifying requirement indicated therein.
2. The financial percentage participation by each consortium partners shall be as indicated below.
 - a) M/s _____ : _____ %
 - b) M/s _____ : _____ %
3. We, the consortium partners hereby agree that M/s. _____ shall act as the Leader of the consortium who shall have authority to bind each of the consortium partner(s). The Leader of the consortium shall be responsible towards:
 - (a) preparation and submission of bid on behalf of the consortium
 - (b) to negotiate with the Purchaser (if selected by the Purchaser for negotiation)
 - (c) acceptance of the contract on behalf of consortium,
 - (d) correspondence with the parties, co-ordination between the Purchaser, Consortium Partners

- and other agencies concerned,
- (e) submission of the Performance Securities and other documents,
 - (f) to submit invoice and other documents and receive the payment,
 - (g) to ensure performance of the equipment/system as the case may be.
 - (h) to respond promptly in settlement of disputes arising during any stage from submission of bid till closure of contract
 - (i) to participate in the process of arbitration.
4. In case award of contract by the Purchaser, we to this the consortium partners Consortium Agreement do hereby agree that we shall furnish the contract performance guarantee in favor of the Purchaser from a Bank as per the said tender/contract conditions for a value stipulated in the Contract awarded and such guarantee shall be in the name of the Leader of the Consortium.
 5. Each of the consortium partners shall be jointly and severally responsible for performance of the contract. Further, the consortium partners shall be jointly and severally responsible for discharging all the obligation of the contract.
 6. Any correspondence exchanged with the leader of the consortium shall be binding on consortium partner(s).
 7. The leader of the consortium shall ensure performance of the equipment/system on behalf of the Consortium.
 8. The consortium partners shall bear the pre-tender expenses incurred by them.
 9. It is agreed that Consortium Partner(s) of this agreement will not assign or transfer any of their rights or obligations under this agreement without the written consent of the Purchaser as well as the other consortium partner(s).
 10. We, the consortium partners hereby undertake and confirm that none of the consortium partner is blacklisted / debarred for business by any of the Government Organisations /Public Sector Units.
 11. In case of breach of the said contract by any of the partners of the Consortium, the other consortium partner(s) hereby agree to be fully responsible for the successful execution/performance of the Contract in accordance with the terms and conditions of the contract.
 12. Further, if the Purchaser suffered any loss or damage on account of any breach of the Contract or any shortfall in the completed equipment/plant, meeting the guaranteed performance parameters as per the technical specifications/contract documents, the Leader of Consortium, Consortium Partners for the present contract shall undertake promptly to make good such loss or damage caused to the Purchaser, on the Purchaser's demand without any demur. The Purchaser shall have the right to proceed against anyone of the consortium partners and it shall neither be necessary or obligatory on the part of the Purchaser to proceed against the Leader of the Consortium to the present contract before proceeding against the first or the second consortium partner.
 13. Each Consortium Partners hereby covenants that it will perform its obligations in full compliance with the conditions of the contract/purchase order (if and when issued by the Purchaser), Consortium Agreement as per the regulations and statutory laws of India. In case of conflict between Contract/Purchaser Order issued by the Purchaser and Consortium Agreement, Contract/Purchase Order shall take precedence over the Consortium Agreement.
 14. The responsibilities for performing execution of the said contract by each consortium partner is as indicated in the Annexure-I. It is further agreed by the consortium partners that the above sharing of responsibilities and obligations shall not in any way be a limitation of joint and several responsibilities of the members under this agreement.
 15. We, the consortium partners hereby agree that this consortium agreement remains unaffected due to any change in the Article of Association of any one or any number of consortium partners with

immediate or retrospective effect.

16. This Consortium Agreement shall be governed, construed and interpreted in accordance with Laws of India. Courts of Mumbai shall have exclusive jurisdiction in all matters arising there under.
17. The consortium partners shall maintain confidentiality of the information pertaining to this agreement and the information related to execution of the contract.
18. It is further agreed that this Consortium Agreement shall be irrevocable and shall form an integral part of the Contract and shall continue to be enforceable till the Purchaser discharges the same. It shall be effective on the date first above mentioned for all purposes and intents.

1. Common Seal of M/s _____ has been affixed in my/our presence Pursuant to _____ Board _____ Resolution dated _____. Signature..... Designation.....	For M/s _____ (Signature of authorized representative) Name:..... Designation.....
2. Common Seal of M/s _____ has been affixed in my/our presence Pursuant to _____ Board _____ Resolution dated _____. Signature..... Designation.....	For M/s _____ (Signature of authorized representative) Name:..... Designation.....

WITNESSES:

- 1.
- 2.

ANNEXURE-I TO CONSORTIUM AGREEMENTDIVISION OF WORK AMONG CONSORTIUM PARTNERS BASED ON THEIR RESPONSIBILITIES
AND WORKING ARRANGEMENT

SL No	Description of work to be carried out by Consortium (Indicative)	Division of Responsibilities	
		Leader of Consortium	First Consortium Partner
1	Coordination of the Tender/Contract		
2	Design of the CoEs		
3	Manufacture & Supply of equipment 1. 2. 3. 4. 5. 6.		
4	Installation & Commissioning 1. 2. 3. 4. 5. 6.		
6	Comprehensive Maintenance during warranty period of 60 months 1. 2. 3. 4. 5. 6.		
5	Hand-Holding Training for 36 months		
6	Placement of certified trainees		

7	Any other additional responsibilities		
---	---------------------------------------	--	--

NOTE:

- i) The above format of consortium agreement is prepared for two consortium partners. In case the number of consortium partner allowed as per the tender is more than two, the format has to be modified accordingly.
- ii) Consortium shall include/modify activities to be carried out by them based on the scope of the tender.

TECH –8**Technical Compliance Sheet****(To be submitted on Bidder's Letterhead)**

Sl. No.	Product Name (As mentioned in ToR)	Technical Specifications (As per ToR)	Compliance (Yes/No)	If No, Reasons of deviations	Remarks (Additional features, if any)

Note:

The Technical compliance sheet shall provide a detailed list of identified requirements and specifications as mentioned in the ToR (Section-III). The bidder should indicate against the requirement in the compliance column to indicate the extent to which their proposals comply with the requirements. Bidder should also fill the details of proposed hardware and provide the necessary information.

The offered product within the scope of this RFP may have some features not contained in the ToR. Bidder may provide these details separately. These will not be part of above evaluation criteria.

Authorized Signatory with Date and Seal:**Name and Designation:** _____**Address of the Bidder:** _____

TECH –9

Manufacturer's Authorization Form

(To be submitted on OEM Letterhead)

To,

The Director,
Technical Education and Training, Odisha, Kataka
Killa Maidan, Buxi Bazar, Kataka – 753001.

Dear Sir,

We M/s. _____ who are established and reputable manufacturers of

do hereby authorize M/s. _____ (Name and address of Agent / Dealer) to participate in the above tender.

We hereby extend our technical assistance to the bidder during installation and inspection of the product.

We hereby certify that, the equipment being sold would not be declared End of Support (EoS) or become obsolete in the next 5 years. Also, we certify that the products being sold would be covered under Warranty / Support and OEM support will be available for 05 years (as specified in the RFP/ NIT No.) from the date of installation, even in the case, the bidder becomes “Out of service”.

We have studied the requirements of the product and confirm that we will adhere to the specifications of the tender and quality plan and extend all support during the inspection and provide documentary evidence at the time of inspection for the verification by the Client/Client's representative.

Date: _____

Yours faithfully,
(Name)

**Signature and
Seal of the OEM**

For and on behalf of M/s. _____

(Name of the manufacturer)

TECH –10

Declaration regarding “Restrictions on procurement from a Bidder of a country which shares a land border with India”

(To be submitted on Bidder’s Letter Head)

To,

The Director
Directorate of Technical Education and Training, Odisha
Killa Maidan, Buxi Bazaar, Kataka- 753001
Phone No-0671 (2301061); Email: dtetorissa@gmail.com

Dear Sir,

In reference to bid submitted by M/s _____ against DTE&T Odisha’s Tender NIT Number: _____, I/We have read the Order No: 27945 /F; dated: 16-10-2020 from Finance Department, Government of Odisha regarding **restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries.**

I/We certify that M/s _____ (name of Bidder) is not from such a country and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I also certify that M/s. _____ will not offer any products/services of entity from such countries unless such entity is registered with the Competent Authority.

I/We certify that we/our Collaborator/Tie-Up Partners are/is not from such a country or, if from such a country, have/has been registered with the Competent Authority and we will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority.

We hereby certify that we fulfill all requirements in this regard and are eligible to be considered.

Authorized Signatory with Date and Seal:

Name and Designation: _____

Address of the Bidder: _____

TECH –11**“Bidder’s Affidavit for Micro and Small Manufacturing Enterprises to get an exemption as per the Odisha Procurement Preference Policy”**

<< An affidavit on a non-judicial stamp paper of INR 10/- by Company Secretary/ Authorized Representative and Signatory of the Applicant with his/her dated Sign and Seal >>

AFFIDAVIT

(Applicable to Bidders who fall under the definition of Odisha Small Manufacturing Enterprises)

I, Shri/ Smt/ Ms.....(Designation)..... of (name of the Bidder Enterprise) solemnly state the following.

1. That annual turn-over of my enterprise is less than Rs. 50 Cr.
2. That my enterprise has a valid Udyam Registration bearing No..... within the jurisdiction of the State of Odisha.
3. That manufacturing plant/unit of my enterprise is located in Odisha in Village/Town/City_____, Block/ULB_____ Dist._____.
4. That the goods for which I am submitting this bid are manufactured in the above-mentioned manufacturing plant/unit of my enterprise.
5. That the goods to be supplied by my enterprise shall be its own manufactured goods.
6. That my enterprise shall not supply goods which are not manufactured by my enterprise.
7. That my enterprise has not been blacklisted/debarred by any Government Organization from participating in current procurement process.
8. That my enterprise comes under the definition of Odisha Small Manufacturing Enterprise (OSME), as defined in the Policy, and is, therefore, eligible for preferences and relaxations provided in the Policy for OSMEs.
9. That I am submitting this affidavit in response to the tender No _____ dated _____ invited by (Organisation Name) _____ for supply of (item name) _____.

I certify that all information furnished by me as above are true and correct. If any information is found to be incorrect, I and my enterprise shall be liable for any punitive action as deemed appropriate by competent authority.

Date: _____ Signature of Bidder _____

Name of the Bidder _____

Address _____

Mobile No. _____

Email: _____

9. SECTION V: Financial Bid (Cover-2)

Price Bid to be submitted in BoQ Ms-Excel format. The following supporting documents to be attached (in PDF format) with the seal & signature of the signing authority along with the Price Bid (BoQ Ms-Excel format) within the Cover-2.

FIN-1**COVERING LETTER
(In Bidders Letter Head)****To***[Location, Date]***The Director****Directorate of Technical Educational and Training, Odisha****Killa Maidan, Buxi Bazar, Kataka– 753001****Phone No-0671(2301061), Fax-0671(2301961)****Email-dteterissa@gmail.com****Sub: “RFP for establishment of CoE in Electric Vehicle Technology at Govt. ITIs of Odisha”
[FINANCIAL BID]**

Sir,

I, the undersigned, offer to provide the Goods/Services for *[Insert title of assignment]* in accordance with your RFP No. _____, Dated: _____. Our Financial Bid is for the sum of *[Insert amount(s) in words and figures*]*. This amount is inclusive of all the applicable taxes as per GST Act.

I do hereby undertake that, in the event of acceptance of our bid, the supply/services shall be provided with respect to the terms and conditions as stipulated in the RFP document. Equipment wise cost as per format (Annexure) given in the RFP documents are mentioned below:

SL No	Particulars	Total Cost (Rs) (Without Tax)	Total Cost (Rs) (With Applicable Taxes)
1	*Total Cost of the Project [supply of equipment, machinery and software (if any) with their perpetual licenses, tools & tackles, consumables, comprehensive warranty for 60 months and cost of freight, insurance, unloading charges, installation & commissioning charges, civil, electrical and other works (if any) and hand-holding for 36 months (if applicable) etc.] **The bidder must provide equipment wise cost breakup (In Annexure) with this section.		
2	CAMC Charges for 6th year		
3	CAMC Charges for 7th year		
4	CAMC Charges for 8th year		
	GRAND TOTAL		
	**Grand Total (Total Cost without tax) in words (_____)		

*If any discrepancy is found in between total figure and words, then the value mentioned in word shall be final.

** Both Price of Goods and CAMC charges (without tax) in the BoQ will be considered for Financial Bid Evaluation.

Equipment wise cost breakup along with rate of GST in Annexure must be submitted along with this price bid format. The total price of this breakup should match the price at serial -01 of above BOQ.

Yours faithfully,

Authorized Signatory [In full and initials]:**Name and Designation of Signatory with Date and Seal:**

FIN - 2**Annexure****Bill of Quantity (BoQ)***(on Bidders Letterhead)***Name of the Bidder:** _____**Sub: RFP for establishment of Centre of Excellence in Electric Vehicle Technology at Govt. ITIs of Odisha [FINANCIAL BID]**

SI No	Item description	HSN Code	Price without GST	Rate of GST (%)	Price with GST
1	Cost of Goods				
1.1					
1.2					
1.3					
1.4					
1.5					
	*Bidder may add rows here for submission of item wise rate				
A	Total of Cost of Goods				
2	Cost of Works				
2.1	Required civil, electrical and other works (if any) for installation and commissioning of equipment/machines				
B	Total of Cost of Works				
3	Cost of Services				
3.1	Hand-Holding Charges for 36 months				
C	Total of Cost of Services				
	GRAND TOTAL (A+B+C) (in figure)				

The bidder can add rows below as required.

Notes:

- Price must be quoted in INR only. Quoted Price must be fixed for the entire contract period.
- The quoted price should be inclusive of freight, insurance, comprehensive warranty, unloading charges, installation & commissioning charges, civil, electrical and other works, if any etc.

Our Financial Proposal shall be binding upon us subject to the modifications resulting from contract negotiations, up to expiration of the validity period of the Proposal.

We solemnly affirm that we will strictly adhere to the laws against fraud, corruption and unethical practices, including but not limited to "Prevention of Corruption Act, 1988", during the Request for Proposal (RFP) process and execution of the Contract, in case we are awarded the work. We understand you are not bound to accept any Proposal you receive.

Yours faithfully,**Authorized Signatory [In full and initials]:****Name and Designation of Signatory with Date and Seal:**

10. Section VI: Annexures**Annexure I: Bid Submission Checklist**

Sl No	Description	Submitted (Yes/No)	Page No.
Technical Proposal (PART – A)			
1	Filled in Bid Submission Check List (ANNEXURE I)		
2	Covering Letter (TECH -1)		
3	Bid Processing Fee of Rs. 11,800/- (Scan copy with date and DD number)		
4	EMD amount of equal to 50,00,000.00 lakh without tax (Scan copy of BG with date and BG number)		
5	Copy of Certificate of Incorporation / Registration of the Bidder		
6	Copy of PAN & Goods and Services Tax Identification Number (GSTIN)		
7	Copies of IT Returns for the last 3 FYs (2021-22, 2022-23 and 2023-24) latest GST Return (in GSTR-3B)		
8	General Details of the Bidder (TECH - 2)		
9	Financial details (Turnover) of the bidder (TECH – 3) along with all the supportive documents such as copies of Income-Expenditure Statement and Balance Sheet for the concerned period		
10	Power of Attorney (TECH - 4) in favour of the person signing the bid on behalf of the bidder		
11	List of completed assignments of similar nature (Past Experience Details) (TECH – 5) along with the copies of work orders for the respective assignments		
12	Undertaking for not have been black listed by any Central / State Govt./any Autonomous bodies as on date of bid submission. (Tech-6)		
13	Consortium/JV Agreement (if applicable) (Tech-7)		
14	Technical Compliance Sheet (Requirements and specifications as per the ToR) (Tech-8)		
15	Manufacturing License or the Manufacturer's Authorization Form (TECH - 9)		
16	Declaration regarding "Restrictions on procurement from a Bidder of a country which shares a land border with India" (TECH - 10)		
17	Affidavit for Micro and Small Manufacturing Enterprises (TECH - 11)		
18	Net Worth Certificate duly sealed & signed by a Chartered Accountant		
19	Valid ISO/ISI certificates along with Machinery Test Certificate as applicable.		
20	Product wise brochure & catalogues and relevant information on products to be supplied		
21	Certification in its Cover Letter regarding non-failure of performance on any contract		
Financial Proposal (PART -B)			
1	Covering Letter (FIN-1)		
2	Bill of Quantity (BoQ) (Annexure)		

Undertaking:

All the information has been submitted as per the prescribed format and procedure.

Authorized Signatory [In full and initials]: _____

Name and Designation with Date and Seal: _____

Signature: _____

Annexure II: Performance Bank Guarantee Format

To

Directorate of Technical Education and Training, Odisha,
Killa Maidan, Buxi Bazaar, Kataka – 753001.

WHEREAS <<Name and address of the supplier>> (hereinafter called “the supplier”) has undertaken, in pursuance of contract no.....dated.....to supply.....(description of goods and services) (herein after called “the contract”).

AND WHEREAS it has been stipulated by you in the said contract that the supplier shall furnish you with a bank guarantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

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

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

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

This guarantee shall be valid until the.....day of.....,20.....

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

.....
(Signature of the authorized officer of the Bank)

.....
Name and designation of the officer

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

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

Annexure III: Proforma of the “Comprehensive Annual Maintenance Contract (CAMC) to be Signed between DTE&T, Odisha and the Agency”

This Agreement (hereinafter called the “Agreement”) is made on this [•] day of the month of [month], [year].

BETWEEN

Directorate of Technical Education and Training, Odisha having its office at Killa maidan, Buxi Bazar, Kataka – 753001 (hereinafter referred to as “DTET”, which expression shall, unless repugnant to or inconsistent with the context, mean and include its successors and assigns) of the first part.

AND

M/s. [•], a company incorporated under the provisions of the Companies Act, 1956/2013 or a registered partnership firm under the provisions of the Indian Partnership Act, 1932 or a LLP firm registered under LLP Act, 2008 and having its registered office at [•] (hereinafter referred to as the “Service Provider” which expression shall unless repugnant to or inconsistent with the context, mean and include its successors and assigns) of the other part.

WHEREAS

- i) the Service Provider, in the ordinary course of its business, is engaged in providing [•] services to its clients, and have represented to DTET through their bid(s), against Bid document No. [•] dated [•] (hereinafter called the “Tender”) for the Procurement of Goods and provide Annual Comprehensive Maintenance Services (CAMC) for the equipment/machines supplied at CoE, after completion of warranty period - [•] (through e-procurement tender process);
- ii) on the basis of the said Tender, DTET has adjudged the Service Provider as a successful Bidder and issued Letter of Award (LoA) No. [•] dated [•] for the same;
- iii) the Service Provider has agreed through their letter of acknowledgement vide letter No. [•] dated [•] to perform and undertake the scope of work as described in the Tender;
- iv) the Service Provider is being engaged to provide the required services on the terms and conditions set forth in this Agreement;

NOW THEREFORE THE PARTIES hereby agree as follows:

1. The mutual rights and obligations of the Service Provider and DTET shall be as set forth in this Agreement, in particular:

- The Service Provider shall provide the services in accordance with the provisions of this Agreement; and
- DTET shall make payments to the Service Provider in accordance with the provisions of this Agreement.

2. Conditions of Contract

(a) Contract Period: Annual Comprehensive Maintenance Contract (CAMC) initially valid for fifteen months and may be extended further if necessary.

(b) Payment Terms: 100% of the annual awarded value (final quoted /negotiated prices) within 30 days of submission of Tax invoice along with certification from the Principal of consignee institute.

Payment shall be released annually on completion of CAMC subject to satisfactory performance and due recommendation from concerned Principal/Head of institute.

(c) Other Terms and Conditions:

- i. Maintenance services shall consist of Preventive and Corrective maintenance of equipment specified above & will include supply and replacement of parts free of cost.
- ii. Preventive maintenance, half-yearly once to be done, should include:
 - a. Check-up to ensure that device connection is proper; cabling is at proper condition etc.
 - b. Cleaning of the above equipment & checking the system performance.
- iii. The Supplier is to furnish the tentative schedule of the preventive maintenance for the equipment mentioned above of Comprehensive Annual Maintenance Contract (CAMC) to be carried out.
- iv. The parts replaced must be new parts or equivalent in performance to new parts.
- v. All software updates should be provided free of cost during CAMC period
- vi. The Supplier will also provide the same maintenance service in case of the movement of equipment from the place of original installation to a different place or lab within the consignee institute's premises.
- vii. Any complaint informed through telephone/e-mail must be acknowledged with a Complaint No. by the Supplier which will be noted by Consignee. All further contact with the Supplier on such complaint will be initiated through that Complaint No. Once rectification is done, that No. will be cancelled by both parties. A register is to be maintained by the Supplier where complaints are to be noted along with Complaint No.
- viii. The maintenance shall normally be done during working hours of the customer i.e. from 10 AM to 5 PM. However, in case of emergency, maintenance may have to be done beyond office hours and even on holidays. Prior arrangement through proper communication should be worked out in all such cases by the Supplier and the Consignee.
- ix. The Service Engineer of the Supplier will be allowed to handle the respective equipment only in presence of the officer in charge at the Consignee site.
- x. The Supplier should ensure that maintenance job is not hampered / delayed due to paucity of spares/ inadequate manpower, etc.
- xi. The Supplier should submit the service call report to the Consignee for each and every service call without fail.
- xii. In case of delay / lack of communication, penalty will be calculated as mentioned below in CAMC Clause.

COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT CLAUSE

Category of Maintenance	Response Time	Penalty/Delay Charges
Minor faults	Immediately with telephonic or email support or maximum within 48hrs from the actual time of reporting of the problem to the Supplier.	0.5% (Half Percent) of the total contract value (without tax) shall be deducted for every week's delay. The delay charges will be deducted from the pending payment or Performance Security submitted by the Supplier. In no context the total delay charges will exceeds 5% of the total Contract Value (excluding taxes).
Minor repair which requires visit to the	Within 7 days of complaint registered.	

Consignee Institute		
Major breakdown or replacement of parts	Within 15 days from the complaint registered to supplier.	

- xiii. A logbook shall be maintained in which the vendor shall record all the complaints made and parts taken out of branches/office for repair. The vendor shall submit copy of consolidated complaint reports furnishing the details of institute-wise breakdown calls lodged/attended and its status on quarterly basis to Purchaser's office at Kataka.
 - xiv. Repair and servicing of equipment shall be carried out at consignee institute sites, in case the equipment is required to be transported to the Supplier's/manufacture's service workshop for repairs, the same shall be undertaken at the risk and cost of the Supplier. Moreover, the Supplier may furnish Security Amount in form of Demand Draft (equal to the cost of the equipment/machine) to the Principal of the Consignee Institute before the equipment taken out from the consignee institute.
 - xv. After completion of the work/repair/maintenance, the Principal of the consignee institute shall issue a certificate of completion to the supplier.
- (d) The Agreement shall be governed by the laws of India and the courts of Bhubaneswar/Kataka shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with this Agreement
- (e) This Agreement has been executed in English, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Agreement

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their respective authorized representatives on the day and year first before written.

For and on behalf of Directorate of Technical Education and Training, Odisha For and on behalf of M/s.

(Authorized Representative)

(Authorized Signatory)

Name:

Name:

Designation: Director

Designation:

DTE&T Odisha

Name of the Service Provider:

Killa Maidan, Buxi Bazaar, Kataka-751001, Address:

Odisha

In presence of the following witnesses

Name:

Name:

Designation:

Designation:

DTE&T Odisha

Name of the Service Provider:

Killa Maidan, Buxi Bazaar, Kataka-751001, Address:

Odisha

******* End of the Document*******