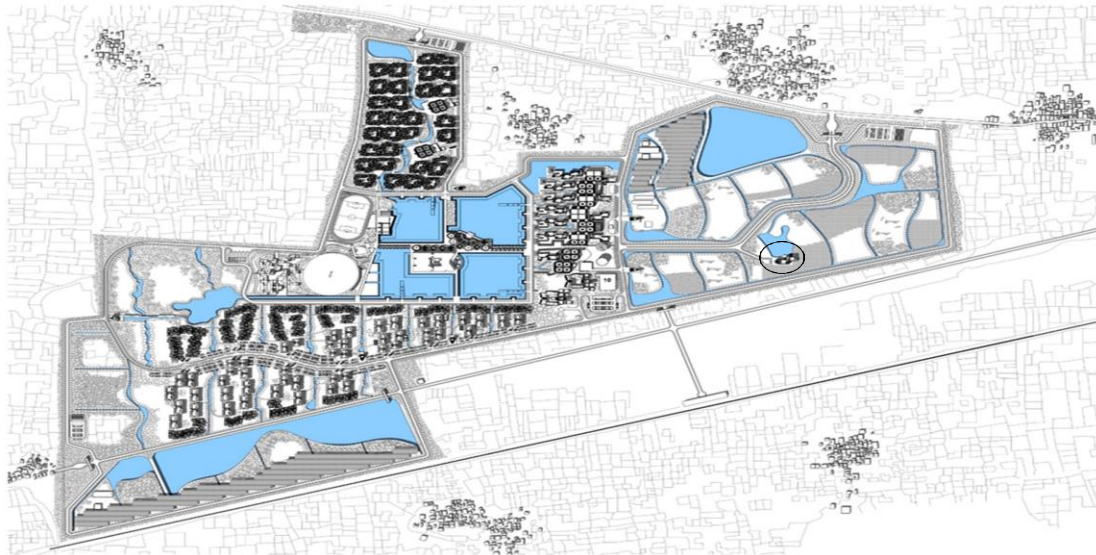


NALANDA UNIVERSITY

District Nalanda, Rajgir,
Bihar. Pin Code 803116

Invites e-Tender

For the Supply, Installation, Testing & Commissioning of Audio and Video System for the Remaining Buildings (Other than the Priority Buildings) at the Permanent Campus of Nalanda University (NU), District Nalanda, Rajgir, Bihar Under **Package 5C**.



Invites Bids from PSUs/GOVT AGENCIES/DEPARTMENTS

Invite

Tender No: Nu/Engg/68/20-21/02

Tender Date: 24th April 2021

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Registration with M/s ITI Ltd: - Intending bidders are requested to register themselves with M/s ITI Ltd (if not registered earlier) through <https://nalandauniv.euniwizarde.com> for obtaining user-id, by paying a registration fee (As given in the e-portal), online tender processing fee etc. Bidders are also required to obtain Digital Signature for participating in the e-tender.

E-Tender Processing Fee (As given in the e-portal), pay to "ITI LTD". Through e-payment gateway.

For participating in the e-Tendering process of Nalanda University, Rajgir, Bihar, the contractor shall have to get them registered on the site <https://nalandauniv.euniwizarde.com> by making required payment through only online payment mode so that they will get user ID and Password. This will enable them to access the website, <https://nalandauniv.euniwizarde.com> with the help of Digital Signature by which they can participate in e-Tender of Nalanda University, Rajgir, Bihar. For this intending bidder may contact following e-Wizard Helpdesk numbers.

E-Wizard Helpdesk

1st floor, M-23, Road No. - 25,

Near SBI Sri Krishna Nagar, Patna-800001.

Phone No.: 0612-2520545, 8448288982, 8448288984,8448288986

NALANDA UNIVERSITY

Notice Inviting e-Tenders

The Registrar, Nalanda University invites online bids from PSUs/GOVT AGENCIES/DEPARTMENTS of repute in two bid system for the following work:

NIT No: Nu/Engg/68/20-21/02 Dated 24.04.2021

NAME OF WORK: Supply, Installation, Testing & Commissioning of Audio and Video System for the Remaining Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar.

Estimated Cost: Rs. 18,76,19,358/-

Earnest Money: Declaration as per NIT

Period of Completion: 9 Months,

Last time and date of submission of bid: 22.05.2021 up to 3.30 pm (as per e-tender portal)

Summary of Scope of work

This tender is invited for Supply, Installation, Testing & Commissioning of Audio and Video System for Remaining Buildings (other than the Priority Buildings) at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar, comprising of the following:

1. Spaces

- a. Block C, E, F, classrooms, halls, auditoriums, meeting rooms, Campus Inn, teaching block etc.

2. Services

- a. Audio reinforcement for the spaces including ceiling or wall mounted speakers, amplifiers and related accessories and connectors.
- b. Video System for the spaces including Projection systems, Screens, Video Conferencing systems, Lecture recording system and related supporting hardware's and accessories.
- c. Any other work mentioned in the BOQ

3. Complete operation and Maintenance of the installed equipment's and system included in the BOQ for DLP as well as Comprehensive AMC period.

Site is located along the Patna - Rajgir Highway and is well connected with the city of Rajgir, Bihar. Total area of the site is approximately 455 acres ("Site").

The proposed campus of Nalanda University is planned to be developed on a mostly flat terrain in the foot hill of Nalanda Hills. The site is located in Gangatic plains area of Southern Bihar.

The tender is for the Supply, Installation, Testing & Commissioning of Audio and Video System for various Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar.

SECTION I: INVITATION FOR BIDS (IFB)

The Registrar, Nalanda University invites PSUs/GOVT AGENCIES/DEPARTMENTS for Online two bid system tender for the Supply, Installation, Testing & Commissioning of Audio and Video System for all the Remaining Buildings at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar.

Estimated Cost	Rs. 18,76,19,358/-
Earnest Money	Declaration affidavit
Performance Guarantee	3% of Tendered Value.
Security Deposit	2.5% of Tendered Value
e-Tender Processing Fee	Rs. 5000 (Fifteen Thousand Only)
Time Allowed	9 Months
Date of Uploading Notice Inviting Tender	24.04.2021
Pre-bid Meeting	05.05.2021 at 11.00AM at NU Rajgir, as per the online portal.
Last Date of Submission of Tender Date & Time	26.05.2021 up to 3.30 PM Or as per online portal.
Date & Time of Opening of Technical Tender (Eligibility) Documents	27.05.2021 at 3.30 PM OR as per online portal.

1. Contact information -

The Registrar,
Nalanda University,
District Nalanda, Rajgir,
Bihar - 803116
Tel : +91 6112 255330
Fax : +91 6112 255766
Email: phase1.tender@nalandauniv.edu.in

2. Two bid System –

The two bid system will be followed for this e-tender. In this system, the bidder shall submit his offer online in two parts viz. Technical Bid and Commercial Bid. The offers submitted by telegram/ fax/ e-mail/ by hand or any other mode except e-tender through <https://nalandauniv.euniwizarde.com> shall not be accepted. No correspondence will be entertained in this matter. The tender document can be Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

downloaded from the websites: www.nalandauniv.edu.in,
<https://nalandauniv.euniwizarde.com/> OR www.eprocure.gov.in/epublish/app

The general condition of contract is framed inline of the CPWD guidelines amended till publish of the last date of the submission of the tender. However, the main clauses of the GENRAL CONDITION OF CONTRCAT IS ENCLOSED SEEPERATELY as ANNEXURE-GCC which must be referred for the understanding to the bidders. In case of discrepancy between the NIT and GCC terms, the NIT terms will prevail.

Part 1: "Technical Bid" shall be uploaded in the form of following documents:

1. Copy of Tender Fee (Non-Refundable) in the form of **Demand Draft** for **Rs. 5,000/-** (Rupees Five Thousand only) drawn on any **Nationalized/ Scheduled Bank**, in favour of '**Nalanda University**' payable at Rajgir.

a) Bank Details of Nalanda university is as follows:

1. Name of Bank: HDFC BANK LTD
2. Name & Address of Branch: DHARAMSHALA ROAD, DIST NALANDA, City: RAJGIR 803116, State: BIHAR
3. Branch Code :2059
4. IFSC Code of respective branch: HDFC0002059

The participating bidder(s) may also deposit online in the above give account and the copy of the electronic transfer statement done before set timeline to be uploaded on the web portal in place of the said DD.

2. **Bidder have to submit Bid Security Declaration as per format attached in Annexure- _(Form I)_. No other mode of payment will be accepted. Bids submitted without Bid Security Declaration will be treated as rejected.**

Note: Tender Fee & Bid Security Declaration shall be exempted in case of Micro & Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small & Medium Enterprises (MSME) or are registered with the Central Purchase Organization of the concerned Ministry or Department or Start-up as recognized by Department of Industrial Policy & Promotion (DIPP). **The bidder seeking exemption should be registered with MSME/ DIPP for the items and services as mentioned in the tender document and should upload a copy of valid Registration Certificate along with the technical bid.**

In case of non-submission of original instrument towards tender fee and Bid Security Declaration, the bid shall be rejected. The Demand Draft submitted towards tender fee is non-refundable.

3. Duly filled Technical Bid with proper seal and signature of authorised person on each page of the bid submitted. The person signing the bid should be the duly authorised representative of the firm/ company whose signature should be verified and certificate of authority should be submitted. The power or authorization or any other document consisting of adequate proof of the ability of the signatory to bind the firm/ company should be annexed to the bid.
4. Self-Attested copy of GST, PAN & other Registration certificate, as applicable.
5. A certificate by the auditor/ CA/ CS indicating the turnover of the firm should be enclosed. The bidder should have minimum average turnover of **INR 8 Crores** in last three financial years ending as on **31st March 2020**.
6. All documents related with Firm Registration/ Partnership Deed/ Articles of Memorandum of Association or Proprietorship Deed, Certificate of Incorporation should be uploaded.
7. **Relevant ISO certificate in IT/AV Infrastructure.**
8. Only the authorized partner for this particular RFP are allowed to bid for the items mentioned in the tender document. The bidder shall enclose tender specific Manufacturer authorization letter from Original Equipment Manufacturer as per format given in the tender document for the products i.e. Video Signal Equipments – Switcher, Scalar, DSP, Button Panel, Lecture Recording & Streaming System, Lecture Capture, PTZ & Document Camera, Video Conference System, Digital Podium, Projector's, LED Display's, Microphone's, Speaker's, Amplifier's, Digital Audio Conference System, Network Switch/WAP and Smart Lesson Capture & Faculty Development System, failing which bid shall be rejected by Nalanda University.
9. The copy of Supply Orders/ Contracts/ Agreements issued by/ signed with Government of India (Ministry/ Department/ Undertaking/ PSU/ Educational Institutions such as IIT's, NIT's, or other such Central Universities/ Autonomous Body) for similar works value as mentioned below herein executed by the bidders in last Seven years ending one day before date of submission of bid in India/Abroad.

For the above experience, the bidder should enclose the completion certificate duly issued by the end user. The bidder should have completed at least **ONE** similar work not less than INR 15.04 Crore **OR TWO** similar works not less than INR **9.4 Crore OR THREE** similar works not less than INR 8 Crore in India during the last seven (7) years ending previous day of the last day of submission of Tender. For this purpose cost of work shall mean gross value of the completed work. This should be certified by an officer not below the rank of Executive Engineer/Project Manager or equivalent.

For the purpose of this clause, "similar work" shall mean "Supply, Installation, Testing and Commissioning of Audio and Video System/ICT completed in India, within the last Seven years, and at least one year of completed DLP/Operation & Maintenance in any project (Bidder may submit experience certificate for work of operation and maintenance of such services in any other project also)".

10. The installation and warranty services are required at Nalanda University premises at Rajgir, Bihar. The bidder should submit along with the technical bid; the detail plan for providing warranty service at site(s).

11. The detailed technical specification, make & model and compliance to the Schedule of Requirement (Section IV) should be provided in the technical bid.

12. The Bidder or their authorized personnel should have conducted a site survey. The details of the same should be furnished as per Form G

13. Undertaking to the effect that all the tender terms & conditions are acceptable to the bidder.

14. Undertaking to the effect that a Performance Bank Guarantee (PBG) of 3% of the order value will be submitted within 30 (Thirty) days of the receipt of Supply Order from Nalanda University, Bihar.

15. Other related documents, mentioned in the tender document but not listed here.

Part 2: "**Commercial Bid**" shall be uploaded in the form of following documents:

Price schedule should be submitted online only in the form of **BOQ_XXXX.xls**. The prices should be mentioned in figures as well as in words wherever mentioned in the

BOQ_XXXX.xls. The bidder should carefully cross check the prices entered in figures with corresponding figures converted in words.

3. Pre Bid Meeting:

The pre-bid meeting shall be held on **05.05.2021** at **1100 Hrs** at Project Site Office, Nalanda University, Nalanda, District Rajgir, Bihar - 803116 and over video conferencing/Web link.

Maximum 2 (Two) participants per bidder will be allowed to participate in the Pre – Bid Meeting. The queries, if any, will have to be submitted in writing 2 (two) days before the day of Pre – Bid Meeting on email id phase1.tender@nalandauniv.edu.in and the answers to the queries will be made available on our website. **The bidders are also requested to kindly send your queries preferably in the Microsoft excel sheet (editable)**

No queries shall be entertained after the Pre – Bid Meeting.

4. Date of submission of Online bids and opening of the Technical bids

Last date for submission of Online bids is on **26.05.2021** up to **1500 Hrs** at the above mentioned online portal.

The Registrar,
Nalanda University,
Nalanda, District Rajgir,
Bihar - 803116

Technical bid will be opened on **27.05.2021** at **1330 Hrs** at Nalanda University, District Nalanda, Rajgir, Bihar

The Tender Fee & bid security declaration can be submitted in person or through post/ courier Nalanda University, Rajgir, Bihar shall not be responsible for any postal delays resulting in disqualification/ rejection of any bid) so as to reach on or before the due date and time. The bidders 'authorized representative (maximum two) can attend the bid opening/s.

The representatives of bidders may choose to attend the opening of the technical bids. In case bidder requires any clarifications / information they may contact Nalanda University, District Nalanda, Rajgir, Bihar address given in Clause 2 of Section I.

The technical bids will be evaluated to shortlist the eligible bidder. The technical bids of only the short-listed bidders shall be considered for further processing (technical evaluation).

Bidder whose technical bid is found to be acceptable and meeting the eligibility requirements as specified in this tender will be informed about the date and time of the opening of the price bid.

5. Opening of Price bids

Price bids of the technically responsive bidders only will be opened online, in the presence of the bidders or their authorized representative, who choose to attend, at the **time place and date** to be informed later.

The authorized representative of bidders, present at the time of opening of the bids shall be required to sign an attendance register as a proof of having attended the commercial bid opening.

The bidder's name, bid prices and such other details considered as appropriate by Nalanda University, District Nalanda, Rajgir, Bihar, will be announced at the time of the opening of the bids.

(Technically accepted competitive bids ONLY will be considered for the online opening of Price Bids).

END OF SECTION I

SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

1. Delivery Period / Project Timelines

The delivery and installation at site(s) must be completed within **270 days** from the date of placement of supply order by Nalanda University, District Nalanda, Rajgir, Bihar. It is mandatory for the bidders who respond to this bid to meet these expectations as time is the essence of this contract and is tightly linked to completing the project within the available time frame.

Project Milestone Schedule:			
Sr. No.	Description of Milestone (Physical)	Time allowed in Months (from date of start)	Amount to be with-held in case of non-achievement of milestone
Milestone of Works (Time duration 9 Months)			
1	Shop drawings and design: Preparation by the contractor (System Integrator), approval as per the site requirement for 1 st lot of buildings including all technical datasheet.	15	0.5% of tendered value.
2	FDCC, dispatch clearances etc formalities for at least Lot 1 (F Block, 300 seaters auditorium and classrooms) and Shop drawings: Preparation by the contractor (System Integrator), approval as per the site requirement for all remaining buildings including all technical datasheet.	60 Days	0.5% of tendered value
4	Supply of all equipment's, system for at least 1 st lot (F Block, 300 seaters auditorium and classrooms) at site in good condition as per building & shop drawings requirements including racks, cables, etc...	75 Days	0.5% of tendered value
6	ITC for the AV system and handing over of the completion/inbuilt drawings) for 1 st lot (F Block, 300 seaters auditorium and classrooms)	90 Days	0.5% of tendered value

Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

	And FDCC, dispatch clearances etc formalities for all remaining equipment's and systems.		
7	Supply of all remaining equipment's, system	150	
8	Final Handing over of the entire setup for all buildings as per design intent along with details of the local service and central service center. The contractor shall introduce in writing about the services support, do's & don'ts, Operation, Maintenance and Services procedures and guidelines. The contractor has to submit the AS Built Drawing and maintenance manuals of all the items.	270 Days	0.5 % of the tendered value

Note:

- a. Withheld amount shall be released if and when subsequent milestone is achieved.**
- b. The Milestone may be rescheduled within the timeline as per the University's requirement.**
- c. The detailed planning (micro and macro level) to be submitted by the system integrator in co-ordination of the Engineer In Charge or official delegated by the University.**

1	Total Time allowed for execution of work	9 (Nine) Months
2	Authority to decide Extension of Time	Vice Chancellor, Nalanda University, Rajgir, Bihar
3	Rescheduling of Milestones	Engineer In Charge, and the Rescheduling is to be approved by Vice Chancellor, Nalanda University (NU)

2. Locations for the Supply, Installation & Warranty Services

The items as detailed in this document are required to be supplied and installed at Nalanda University, District Nalanda, Rajgir, Bihar. The contact details for the supply/ installation shall be communicated in the Supply Order.

3. Order Placements and Release of Payment

The supply order and payment shall be released by:

**The Registrar,
Nalanda University,
District- Nalanda, Rajgir,
Bihar - 803116**

4. Bidder eligibility criteria

4.1 Experience: The copy of Supply Orders/ Contracts/ Agreements issued by/ signed with Government of India (Ministry/ Department/ Undertaking/ PSU/ Educational Institutions such as IIT's, NIT's, or other such Central Universities/ Autonomous Body) for similar works value as mentioned below herein executed by the bidders in last Seven years ending one day before date of submission of bid in India/Abroad.

For the above experience, the bidder should enclose the completion certificate duly issued by the end user. The bidder should have completed at least **ONE** similar work not less than INR 15.04 Crore **OR TWO** similar works not less than INR 9.4 Crore **OR THREE** similar works not less than INR 8 Crore in India during the last seven (7) years ending previous day of the last day of submission of Tender. For this purpose cost of work shall mean gross value of the completed work. This should be certified by an officer not below the rank of Executive Engineer/Project Manager or equivalent.

For the purpose of this clause, "similar work" shall mean "Supply, Installation, Testing and Commissioning of Audio and Video System/ICT completed in India, within the last Seven years, and at least one year of completed DLP/Operation & Maintenance in any project (Bidder may submit experience certificate for work of operation and maintenance of such services in any other project also)".

4.2 **Average Turnover:**

The bidder should have minimum average turnover of INR 8 Crore in the last three financial years ending as on 31st March **2020**. A certificate by the auditor/ CA/ CS indicating the

turnover of the firm should be enclosed.

4.3 **Profit & Loss:**

The bidder should not have incurred any loss (Profit after tax should be positive) in more than two (2) years during available last five consecutive financial years balance sheets, ending 31st March 2020, duly certified and audited by the Chartered Accountant.

For this, the bidder shall furnish the Annual Financial Statements for the last five (5) years ending 31st March 2020.

Note: Govt. of India PSU/Autonomous Bodies will be exempted from above criteria during bid evaluation. However they will be required to submit the balance sheet and profit/loss statement along with technical bid in support of the above.

4.4 **Solvency Certificate:**

The bidder shall furnish a solvency/credit facility certificate of value not less than Rs. 8 Crores certified by his bankers. Such certificate shall be bid specific and should be issued within the last six months.

4.5 **MAF:**

The bidder shall enclose tender specific Manufacturer authorization letter from Original Equipment Manufacturer as per format given in the tender document for the products i.e. Video Signal Equipments – Switcher, Scalar, DSP, Button Panel, Lecture Recording & Streaming System, Lecture Capture, PTZ & Document Camera, Video Conference System, Digital Podium, Projector's, LED Display's, Microphone's, Speaker's, Amplifier's, Digital Audio Conference System, Network Switch/WAP and Smart Lesson Capture & Faculty Development System, failing which bid shall be rejected by Nalanda University.

4.6 **Service Support:**

The bidders should have their own branch office/ service centre in District Nalanda, Bihar or shall have an arrangement to provide service through dealer/ service provider.

4.7 **TAX and ISO Registration:**

Bidder should be registered with **Sales Tax/ Income Tax Department of Government of India** and should possess a **valid GST No, PAN No, ISO** & other registration documents as on date of bid submission.

4.8 The Bidder or their authorized personnel should have conducted a site survey. The details of the same should be furnished as per Form G

4.9 Bidders should not have been blacklisted or declared ineligible for corrupt and fraudulent practices. The same should be stated in an undertaking on Rs. 100 Stamp paper.

Note: Nalanda University, Nalanda, Rajgir, Bihar reserves the right to award/ reject the orders to any particular bidder without assigning any reason thereof

4.10 Evaluation Criteria for Eligibility (Technical Tender)

The details submitted by the bidders will be evaluated in the following manner:

The initial criteria for eligibility prescribed above in respect of experience of eligible similar class of works completed, loss, solvency and financial turn over etc. shall be first scrutinized and the bidder's eligibility for the work shall be determined.

The bidders qualifying the initial criteria as set out in Para 7.0 above will be evaluated for following criteria by scoring method on the basis of details furnished by such bidders:

(A)	Financial strength (Form "A" and "B") A Turn over B Solvency	Maximum marks 16 4	20
(B)	Experience in eligible similar nature of Work during last seven years. (Form "C")	Maximum marks	30
(C)	Performance on Works (time Over run) (Form "D")	Maximum marks	10
(D)	Performance on quality of eligible similar works executed (Form "D")	Maximum marks	40
Total		100 Marks	

The owner reserves the right to restrict the list of such qualified contractor to any number deemed suitable by it.

4.10.1. Evaluation of Performance: The NU reserves the right of physical inspection of completed projects of bidders conducted by a tender evaluation committee constituted by the Competent Authority, NU for evaluating the quality of work. The tender evaluation committee may visit and inspect all the eligible works that have been executed and submitted by the bidders in the Technical tender. The marks for quality will be given based on this inspection, if inspection is carried out. The Committee may also at its discretion, call for information from owners of eligible works carried out by bidders or the works in progress by bidders and evaluate the projects regarding all submission done by the bidder including litigations. The bidder shall submit a self-certified self-evaluation calculation sheet for evaluation parameters mentioned in Form F.

4.10.2 To become eligible for short-listing, the bidder shall secure at least **70%** marks in each section A, B, C, and D and **80%** marks in aggregate. **However the qualifying 70% marks must be on both the attributes of section A separately.** In case of eligible similar works being more than one, average value of performance of works for time overrun and quality shall be taken on the basis of performance report of these works.

5. Amendment of Bidding Document

- 5.1 At any time prior to the deadline for submission of bids, Nalanda University, District Nalanda, Rajgir, Bihar may, for any reason, whether on its own initiative or in response to the clarification request by a prospective bidder, modify the bid document.
- 5.2 All prospective bidders who have purchased the bidding document will be notified of the amendment in writing, and such amendments/ modifications will be binding on them.
- 5.3 Nalanda University, Rajgir, Bihar at its discretion may extend the deadline for the submission of bids if the bid document undergoes changes during the bidding period, in order to give prospective bidders time to take into the consideration the amendments while preparing their bids.

A. PREPARATION OF BIDS

Bid Form should be submitted online by all bidders as per format provided in the tender document of the bid document. In case Bid Form is not submitted by the Bidder as per format, their bid shall be liable for rejection. Bidder should avoid, as far as possible, corrections, overwriting, erasures or postscripts in the bid documents. In case however any corrections, alterations, changes, erasures, amendments and/or additions have to be made in the bids, they should be supported by dated signatures of the same authorized person signing the bid documents. The bidders shall sign all the Terms and Conditions of the tender document in each page in token of accepting the conditions and enclose with the bid.

Local Conditions: It will be imperative on each Bidder to fully acquaint himself of all the local conditions and factors that would have any effect on the performance of the contract and cost of the Goods. The Purchaser shall not entertain any request for clarifications from the Bidder regarding such local conditions. No request for the change of price, or time schedule of delivery of Goods shall be entertained after the Purchaser accepts the Bid.

6. BID SECURITY DECLARATION

6.1. BID SECURITY DECLARATION in the prescribed format as mentioned in Annexure – **Form I duly** signed and stamped should be submitted along with the technical bid.

6.2. Bids submitted without BID SECURITY DECLARATION will stand rejected. The bidders registered with NSIC / MSME may claim exemption from submission from BID SECURITY DECLARATION. In this case bidder should submit a copy of valid NSIC/MSME registration certificate along with the technical bid. If bidder submits NSIC/MSME certificate in lieu of BID SECURITY DECLARATION then its technical competence to participate in the tender would be ascertained.

6.3 The BID SECURITY DECLARATION will be returned to the bidder(s) whose offer is not accepted by Nalanda University, Rajgir, Bihar. In case of the bidder(s) whose offer is accepted the BID SECURITY DECLARATION will be returned on submission of Performance Bank Guarantee (Refer Clause 8 of Section III).

6.4 The successful bidder, on award of contract / order, must send the contract/ order acceptance in writing by FAX / Email, within 15 days of award of contract/ order, failing which

Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

the BID SECURITY DECLARATION will be forfeited.

6.2 The BID SECURITY DECLARATION shall be forfeited:

- 6.5.1 If the bidder withdraws the bid during the period of bid validity specified in the tender.
- 6.5.2 In case a successful bidder, fails to furnish the Performance Bank Guarantee.
- 6.5.3 If the bidder fails to furnish the acceptance in writing, within 15 days of award of contract/ order.

7. Period of validity of bids

- 7.1 Bids shall be valid for minimum 180 days from the date of submission. Bid valid for a shorter period shall stand rejected.
- 7.2 Nalanda University, Rajgir, Bihar may ask for the bidder's consent to extend the period of validity. Such request and the response shall be made in writing only. The bidder is free not to accept such request without forfeiting the BID SECURITY DECLARATION. A bidder agreeing to the request for extension will not be permitted to modify his bid.

B. SUBMISSION OF BIDS

The Bid shall be neatly arranged, plain and intelligible. **Each page of the Technical bid should be signed by the authorized person before uploading.** They should not contain any terms and conditions, printed or otherwise, which are not applicable to the Bid. The conditional bid will be summarily rejected. Insertions, postscripts, additions and alterations shall not be recognized, unless confirmed by bidder's signature.

8. Deadline for Submission of Bids

- 8.1 Bids along with Tender Fee & BID SECURITY DECLARATION must be received by Nalanda University, Rajgir, Bihar within Three working days of due date and time at the address specified in the tender document. In the event of the specified date for the submission of bids being declared as a holiday then the bid-closing deadline will stand extended to the next working day up to the same time.
- 8.2 Nalanda University, Rajgir, Bihar may extend this deadline for submission of bids by amending the bid documents and the same shall be suitably notified in the websites.

9. Late Bids

- 9.1 Any bid inadvertently received by Nalanda University, Rajgir, Bihar after the deadline for submission of bids, will not be accepted and returned unopened to the bidder.

C. BID OPENING AND EVALUATION OF BIDS

10. Opening of Bids

- 10.1 The technical bids will be evaluated to shortlist the eligible bidder. The technical bids of only the eligible bidders shall be considered for further processing (technical evaluation).
- 10.2 Bidder whose technical bid is found to be acceptable and meeting the eligibility requirements as specified in this tender will be informed about the date and time of the opening of the commercial bid.
- 10.3 Nalanda University, Rajgir, Bihar will open price bids of only the technically short listed bids, in the presence of the bidder or their authorized representative who choose to attend the bid opening, at the time and date to be informed later.
- 10.4 The bidder's authorized representative who attends the bid opening shall sign an attendance register as a proof of having attended the bid opening.
- 10.5 The bidder's name, bid prices and such other details considered as appropriate by Nalanda University, Rajgir, Bihar will be announced at the time of opening of the price bids.

11. Comparison of Bids

- 11.1 Only the eligible and technically short-listed bids after the technical evaluation shall be considered for price/ commercial comparison.
- 11.2 The comparison shall also take into consideration the delivery schedule, payment terms etc. offered by the bidder in its technical bid. The bid not adhering to the terms as mentioned in Section II & III will stand rejected.

D. AWARD OF CONTRACT

12. Evaluation of Proposals & Award Criteria

- 12.1 The bidder must quote for all the items mentioned under Section IV – Schedule of Requirement. The lowest price criteria shall be applied on the total composite amount of all items taken together.
- 12.2 Preliminary scrutiny of the proposal will be made to determine whether they are complete, required processing fee and bid security have been furnished, whether the documents have been properly signed, and whether the bids are generally in order. Proposals not conforming to such preliminary requirements will be prima facie rejected.
- 12.3 Bids complying with all the eligibility requirements mentioned under Section II Clause 4 of the tender document and fulfilling the specifications and requirement mentioned under Section IV – Schedule of requirement of the tender document shall be treated as substantially responsive bids. Responsiveness of the bids shall be determined on the basis of the contents of the bid itself and shall not be determined by extrinsic evidences. The bid form as per the format signed by the bidder shall supersede deviation(s) mentioned in other part of the bid if any.

- 12.5 Price/ Commercial bids of only those bidders will be opened who are found to be substantially responsive and the work shall be awarded to the commercially lowest bidder.
- 12.6 Bidder should quote their rates in prescribed Performa of Commercial/Price Schedule only for online submission.
- 12.7 In case of discrepancy between words and figures, the rates quoted in words shall be treated as final. The amount will be calculated by multiplying correct price with quantity and in case of any discrepancy, the corrected amount shall be considered and total of all corrected amount shall be bidder's total quoted amount.
- 12.8 In the copies of supply order/ contract/ agreement/ experience certificate submitted by the bidder, the currency is other than Indian Rupees, the value of work in Indian Rupees shall be determined by using the exchange rate declared by Reserve Bank of India as on the last date of submission of technical/ price bids and the eligibility of the bidder shall be determined accordingly.
- 12.9 No Bidder shall contact the Purchaser on any matter relating to his Bid from the time of the Bid opening to the time the contract is awarded.
- 12.10 Any effort by a Bidder to influence the Purchaser in the Purchaser's bid evaluation, Bid comparison or contract award decisions may result in the rejection of the Bidder's Bid.

13. Purchaser's Right to amend Scope of Work

- 13.1 If, for any unforeseen reasons, Nalanda University, Rajgir, Bihar is required to change the Scope of Supply, this change shall be acceptable to the bidder without change in the unit price quoted.
- 13.2 Nalanda University, Rajgir, Bihar reserves the right to reject one/ all the bids or cancel the tender without assigning any reasons there for.
- 13.3 Nalanda University, Rajgir, Bihar reserves the right to accord relaxation uniformly to all the bidder in case the bid submitted by all the bidders are found to have minor deviation.

14. Corrupt or Fraudulent Practices

- 14.1 It is expected that the bidders who wish to bid for this project have highest standards of ethics.
- 14.2 Nalanda University, Rajgir, Bihar will reject bid if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices while competing for this contract;
- 14.3 Any attempt to establish contact with officers of Nalanda University or NU's associates/consultants except those listed earlier in the document regarding this tender may result in debarment or blacklisting of the bidder with NU.
- 14.4 Nalanda University, Rajgir, Bihar may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices

during the execution of contract.

15. Interpretation of the clauses in the Tender Document /
Contract Document

- 15.1 In case of any ambiguity/ dispute in the interpretation of any of the clauses in this Tender Document; The Registrar, Nalanda University, Rajgir, Bihar interpretation of the clauses shall be final and binding on all parties.

END OF SECTION II

SECTION III: SPECIAL CONDITIONS OF CONTRACT (SCC)

1 Prices

- 1.1. The price quoted shall be considered firm and no price escalation will be permitted.
- 1.2. Bidders should quote the prices in INR as per the format given in Price Schedule for the design of shop drawings in co-ordination of the client (and/or his experts/consultants) other services and contractors, supply, installation testing and commissioning and comprehensive maintenance with onsite support with staffs and spares and as per the service level agreement (SLA).
- 1.3. The prices quoted should be inclusive of freight, insurance, packing, applicable taxes till destination. The packing shall be transport worthy so as to prevent their damage or deterioration to goods during transit to their final destination as indicated in this document. The risk in good shall continue with supplier till goods are delivered in good condition at end user's site.

2 Taxes and Duties:

- 2.1. The prices quoted should be inclusive of all GST and /or duties.
- 2.2. Bidder shall arrange to deliver the consignment at Nalanda University, Rajgir, Bihar. The cost and risk of the consignment rests with the bidder till it is delivered to the end user.
- 2.3. The basic prices and applicable **GST will be applicable as per govt norms and applicable tax legislation**

3 Completeness Responsibility:

Notwithstanding the scope of work, engineering, supply and services stated in bid document, any equipment or material, engineering or technical services which might not be even specifically mentioned under the scope of supply of the vendor and which are not expressly excluded there from but which are necessary for the establishment of Nalanda University in Rajgir, Bihar in accordance with the specification and executing the contract to establish achievement of performance guarantee parameters, are to be provided for and rendered by the vendor without any extra charge so that the said project is completed in all respect.

4 Warranty:

All the items covered in the schedule of requirements, shall carry minimum 2 (Two) years on site comprehensive warranty from the date of its installation & commissioning and

thereafter 3 (three) years AMC. The bidder must undertake to provide the installation and warranty service in Rajgir, Bihar. The repairing/ rectification/ replacement/ configuration required, if any, must be done at site only. During the warranty, all complaints should be rectified maximum within 7 working days from the time of complaint confirming to the Service Level agreement and timeline matrix with respect to down & Uptime. In case the rectification of fault involves replacement of some hardware the same should be carried out within maximum 21 working days from the date of intimation subject to confirmation of the SLA and specified down/uptime. In order to avoid the dependency, the stopgap or makeshift arrangement shall be made by the contractor in case of the delay confirming to the SLA. Failure to do so would result in the invoking of the PBG. The PBG will be released by Nalanda University, Rajgir, Bihar only after the submission of satisfactory performance certificate issued by Nalanda University after the completion of warranty period.

5 Shipping Documents and Insurance:

After the consignment is ready for dispatch, the successful bidder shall be required to furnish the following documents:

- i. Chartered Engineer's Certificate
- ii. Packing List
- iii. Insurance Policy
- iv. Invoice & other relevant document(s)

Final Dispatch Clearance Certificate (FDCC) shall be issued by NU on receipt of above mentioned documents from successful bidder. Actual shipment should be done only after receipt of FDCC from NU.

Insurance: The Goods supplied under the contract shall be fully insured including transit insurance against various risks as required or approved by the Purchaser arising out of transportation, storage, delivery, installation, testing and commissioning at his cost up to delivery and installation at site. Insurance policy shall be valid up to the date of Installation and commissioning of equipment. Proof of Insurance shall be made available before issuance of dispatch clearance.

6 Payments:

- i. Nalanda University, Rajgir, Bihar shall release 80% of the payment on delivery of the tendered items **at the site store** as per the FDCC issued
- ii. Payment of 20 % of the purchase order value will be made after the satisfactory successful installation and commissioning of the tendered items on certification by NALANDA UNIVERSITY at Rajgir, Bihar.
- iii. The Security Deposit will be deducted from each bill @ 2.5% of the certified value by the consultant. The security deposit deducted from each bill @ 2.5 % shall be released on submission of 3% Performance Bank Guarantee or after expiry of 2 (two) year warranty period.
- iv. AMC with onsite support payment shall be paid by Nalanda University on quarterly basis within 15 days from the date of Invoice & maintenance report

submission.

Note:

(a) Rates The rates quoted by the tenderer shall be firm and inclusive of all taxes, duties, levies and all charges for packing, forwarding, insurance, freight, delivery, installation, testing and commissioning etc. at site including temporary construction of storage, risks, overhead charges, general liabilities/obligations and clearance from local bodies, if any required.

(b) Storage and Custody of Material Watch and ward of the stores and their safe custody shall be the responsibility of contractor till the final taking over of the installation by the department.

The bill verified amount shall be released after the verification in detail by the Engineer-in-charge Nalanda University for which the Contractor shall provide assistance to the Engineer-in-charge in accordance with their direction. All payment will be subject to statutory or permissible deductions to be made by the Owner prior to the release of the amount to the Contractor.

Each bill shall be accompanied by the following documents.

- i. Invoice in Original along with E-way bill
- ii. Packing List in Original
- iii. Delivery challan with make, model and quantity. The quantity mentioned in the BOQ is tentative, and therefore the actual quantity will be confirmed based on the shop drawings and actual site requirement. The System Integrator or contractor will be bound to supply any number of quantities required for the project on the same price quoted by them. The University reserves the right to increase or descope the quantity without any confirmation from the contractor and payment will be made based on the actual quantity recoded in measurement book or confirmed by the NU all at a time of phase manner as the case may be.
- iv. Technical data sheet of all the Major items.
- v. FDCC Issued by NU or the agency/**person delegated by the NU**

Clause: Payment of Final Bill

On the intimation to the Engineer-in-charge by the contractor for the completion of the work, the Engineer-in-charge shall arrange for the inspection of works. Upon the inspection of works Engineer-in-charge will hand over a list showing the defects in works, if there are any, to the contractor. The final Bill shall not be paid till all such defects are not rectified to the entire satisfaction of the Engineer-in-charge.

The final bill shall be accompanied by:

1. All-technical documents on the basis of which the Work was carried out.
2. Completion certificates for entire Works issued by the Engineer-in-Charge.
3. Manufacture's operating and maintenance manuals as well as guarantee/warranty papers, commissioning and handing over reports for whatever equipment/Materials installed.
4. Security Deposit of 2.5% (Two Decimal Five per cent) of the Contract Value in the form of bank guarantee valid for a Defect liability period from the date of certificate.

5. Certificate of completion duly signed by a chartered engineer.

7 Performance Bank Guarantee (PBG):

The successful bidder must submit a Performance Bank Guarantee (PBG) of 3% of the order value within 30 days of receipt of supply order by Nalanda University, Rajgir, Bihar as per the format provided in the tender document. This Bank Guarantee should remain valid Three (3) months beyond the period of delivery, installation & warranty.

8 Documents for processing payment:

After the consignment is ready for dispatch, the successful bidder shall be required to furnish the following documents:

- vi. Invoice in Original along with E-way bill
- vii. Packing List in Original.
- viii. FDCC In Original
- ix. Insurance Copy
- x. Delivery challan with make, model and quantity.
- xi. Technical data sheet of all the Major items.

Insurance: The Goods supplied under the contract shall be fully insured including transit insurance against various risks as required or approved by the Purchaser arising out of transportation, storage & delivery at his cost up to delivery and installation at site.

9 (A) Delays in the Supplier's Performance: Delays in the Supplier's Performance:

The time and the date specified in the Contract for the delivery and installation commissioning of the Goods shall be deemed to be the essence of the Contract. Delivery, installation and commissioning of the Goods and performance of Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser.

(B) Liquidated Damages: If the Supplier fails to deliver, install and commission of any or all of the Goods or perform the Services within the time period(s) specified in the Contract and during the warranty period, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract price, as Liquidated Damages, a sum equivalent to 0.5% of the price of the delayed Goods or unperformed Services for each week of delay until actual delivery or performance, up to a maximum deduction of 5% of the value of the delayed portion of work.

10 Jurisdiction:

The disputes, legal matters, court matters, if any shall be subject to Nalanda District, Bihar jurisdiction only.

11 Force Majeure:

Nalanda University, Rajgir, Bihar may consider relaxing the penalty and delivery requirements, as specified in this document, if and to the extent that, the delay in performance or other failure to perform its obligations under the contract is the result of a Force Majeure. Force Majeure is defined as an event or effect that cannot reasonably be anticipated such as acts of God (like earthquakes, floods, storms etc.), acts of states, the direct and indirect consequences of wars (declared or undeclared), hostilities, national emergencies, civil commotion and strikes at successful bidder's OEM premises.

12 CLAUSE- Sub-Contractors

Where and when the appointment of Sub-Contractors for specialized job (in the opinion of Engineer In Charge) is indicated, such Sub-Contractors shall be appointed only with the prior written approval of the Owner on the following conditions:

- a) The Contractor shall enter into written agreements with Sub-Contractors and ensure that the Sub-Contractors perform their Work in accordance with and subject to the terms and conditions of these Contract Documents. A copy of each such Agreement shall be furnished to the Engineer-in-Charge and the Owner.
- b) The Contractor shall remain fully responsible to the Owner for the performance and workmanship and all actions of all sub-Contractors and persons directly or indirectly employed by them.
- c) The Contractor shall supply and permit all Sub-Contractors to avail of site facilities and services to enable them to complete their Work safely and without hindrance or delay and conducive to produce the highest quality of Work required.
- d) The Contractor shall upon receipt of instruction from the Engineer-in-Charge, terminate and remove from site forthwith such Sub-Contractor or their person who's Work may be considered unsatisfactory.
- e) The Contractor shall make regular and prompt payment to each Sub-Contractor not later than one week after receipt of payment from Owner for their measured Works certified by the Engineer-in-Charge. If the Contractor fails to make payments to Sub-Contractors as aforesaid, the Owner may, without any obligation or prejudice to its rights and with prior intimation to the Contractor may make direct payments to Sub-Contractors for and on behalf and from the account of the Contractor and recover such sums from the account of the Contractor out of the amounts due and payable under the bills raised by the Contractor. Such direct payments to Sub-Contractors shall be on behalf of the Contractor and shall in no way relieve the Contractor of his responsibilities or create a contractual relationship between the Owner and Sub-Contractor.
- f) Any Subcontractor that has been approved by the Owner shall neither be removed nor replaced without the prior written consent of the Owner.

11. CLAUSE- Electricity supply at site

- I. The available power may be used for the commissioning purpose only.
- II. Contractor will arrange temporary power at their own (if required) for the fitting and Installation purpose and Nalanda University will not be bound to facilitate this.

12. CLAUSE- Insurance

The Contractor shall at his own expense arrange for all insurance policies, including workmen compensation policy and Contractor's All Risk policy (CAR Policy) in the amount of the Contract effective from the date of commencement of Work(s) and until final completion of the Work(s) also taking into consideration the defects liability period, against all of the following risks.

- a) Injuries and damage of persons, property, machinery, equipment, vehicles, animals or things, within or outside the site, arising out of his operations or of any sub-Contractors, nominated or otherwise, or out of any actions of his employees, agents or representatives, limited to Rs. 2,00,000 (Rupees Two Lakhs) per accident
- b) Injuries to his or any Sub-Contractor's employees.
- c) Damage to or loss of the property, equipment, and materials at site, of the Owner, Contractor and all Sub-Contractors, as a result of natural causes such as lightning, storm, flood, rain, fire, earthquake, explosion, landslide, etc.
- d) Damage and injuries to persons, property and materials arising out of riot and civil commotion, theft, sabotage malicious acts, terrorist activities, flood, water logging etc.

The insurance policy or policies to cover risks of every nature shall be in the joint names of the Owner and Contractor, and the original of such policy/ policies shall be lodged with the Engineer-in-Charge. The Contractor shall also lodge the premium receipts with the Engineer-in-Charge, such standing jointly in the names of the Owner and the Contractor.

If the Contractor fails to arrange the requisite insurance or fails to renew the policies, the Owner shall arrange for obtaining the requisite insurance policies and or renew them and recover the cost of all premiums from the Contractor and/or subsequently deduct such amount from the payments due and payable by the Owner to the Contractor from the bills raised by the Contractor in respect of the Work(s) executed.

No certificate of payment shall be issued by the Engineer-in-Charge whether for an interim or of the final bill raised by the Contractor if the Contractor fails to arrange for total insurance cover.

The Contractor shall reinstate in a manner approved by the Engineer-in-Charge all damage of every sort caused entirely at his cost so as to deliver up to the Owner the whole of the Work(s) complete and perfect in all respects, and so certified by the Engineer-in-Charge and also make good or otherwise satisfy all claims for damage to property of third parties.

The Contractor shall be responsible for anything within his control and for all risks and consequences, which are not included in the purview of the insurance policies.

The insurance cover shall stand extended until final completion of the Works and the contract and shall also cover the defects liability period.

The Contractor undertakes not to cancel any insurance policy nor reduce its scope without the written consent of the Engineer-in-Charge.

The Contractor undertakes to file necessary insurance claims jointly with the Owner and also to join the Owner in filing any claim the Owner chooses to.

Payments against all insurance claims shall be received in the name of the Owner and commensurate adjustments shall be made in accounts with the Contractor.

The aforesaid insurance policy/policies shall not be cancelled till the Engineer-in-Charge has agreed to their cancellation.

The Contractor shall prove to the Engineer-in-Charge from time to time that it has taken out all insurance policies referred to above and has paid the necessary premium for keeping the policies alive till the end of the defects liability period.

The Contractor shall ensure that similar insurance policies are taken out by his Sub-Contractor (if any) and shall be responsible for any claims of losses to the Owner resulting from their failure to obtain adequate insurance protections in connection thereof. The Contractor shall also obtain the originals of the policies and the premium receipts from the Sub-Contractor and shall lodge the same with the Engineer-in-Charge.

13. CLAUSE- Good for Construction Drawings, Details and Clearance to Construct.

After the acceptance of the Letter of Intent, issued by the Owner – Nalanda University, the contractor will be issued “Good for construction” drawings for works. The contractor will arrange to mobilize his resources in very positive and judicious manner to start work on maximum possible fronts. This Execution Plan will be discussed with End user (NU) and will be finalized subject to changes, if any, and will be agreed to by all the stake holders. If the contractor fails to show reasonable progress for the works for which the drawings and details are already available, Then the Owner Nalanda University, through the Engineer In Charge, will take suitable punitive action like withholding the payments due to contractor, which is equivalent to the amount to be withheld for completion of nearest mile stone as per this Notice Inviting Tender. The withheld amount will be released as soon as the corrective action is taken by the Contractor, for making up the time lost due to delay.

14. CLAUSE-: Protection of Persons, Works and Property

Accident or Injury to Workmen

The Owner shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or any Subcontractor, other than death or injury resulting from any act or default of the Owner, his agents or servants.

Accident Prevention:

a) General:

In performing this contract, the Contractor shall provide for protecting the lives and health of employees and other persons preventing damage to or theft or loss of property, materials, supplies, and equipment; and avoiding Work interruptions. For these purposes, the Contractor shall- Provide appropriate safety barricades, signs, and signal lights.

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Comply with the standards issued by any statutory bodies having jurisdiction over occupational health and safety and Ensure that any additional measures as required by the Engineer-in-Charge for this purpose.

b) Records.

The Contractor shall maintain an accurate record of exposure data on all accidents taken place incidental to performance of Work(s) under this contract resulting in death, traumatic injury, occupational disease, or damage to or theft / loss of property, materials, supplies, or equipment. The Contractor shall report this data in the manner prescribed by the Engineer-in-Charge.

c) Sub-Contractors:

The Sub-Contractors shall be bound to comply with the clause in the same manner as complied with by the Contractor. In the event of non-compliance by the Sub-Contractor of such clause, the Contractor shall be responsible for compliance of the Sub-Contractor.

d) Written program:

Before commencing the Work, the Contractor shall submit to the Engineer-in-Charge a written proposal for implementing this clause,

Hazardous Material Identification.

a) Notification:

The Contractor shall notify the Engineer-in-Charge in writing of all hazardous material 5 days before delivery of the material. This obligation applies to all materials delivered under this contract, which will involve exposure to hazardous materials or items containing these materials.

b) Responsibility of Contractor:

Neither the requirement of this clause nor any act or failure to act by the Owner shall relieve the Contractor of any responsibility or liability for the safety of Owner, Contractor, or Sub-Contractor's personnel or property.

c) Compliance with laws:

The Contractor shall comply with applicable laws, including the Public Liability Insurance Act 1991, Fatal Accident Act 1855, codes, ordinances, and regulations (Including the obtaining of licenses and permits) in connection with hazardous materials. Contractor shall pay fees and other expenses for obtaining such permission or licenses.

d) Sub-Contractors:

The Contractor shall insert these above clauses, relating to hazardous material, with appropriate changes on entering into contracts or agreements with Sub-Contractors and the sub-contractors shall be bound and be liable to comply with the same, and in the event of non-compliance of the same, the Contractor shall be held liable for damages or otherwise on the acts of the Sub-Contractor in this regard.

Protection of Property

a) Vegetation, structures and equipment:

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The Contractor shall preserve and protect all structures, equipment, and vegetation on or adjacent to the Work site, and which do not unreasonably interfere with the Work required under this contract and shall not be removed by the Contractor. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place.

b) Utilities and improvements:

The Contractor shall protect from damage and have all existing improvements and utilities at or near the Work site and on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall be liable to repair any damage caused to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the Work. If the Contractor fails or refuses to repair the damage promptly, the Engineer-in-Charge may have the necessary Work performed and charge the cost to the Contractor or reduce such amounts from the bills of the Contractor due and payable by the Owner.

c) Contractor shall be required to work within specified areas and they shall be allowed to use only those areas around the works under their scope, for storage of their materials, construction of site offices, erection of batching plant etc. at predetermined locations as shown on the plans. The area so demarcated, shall be barricaded in such a way that the construction activities or the moving vehicular traffic involved in carriage of construction materials/ construction waste etc. do not create interference with any other areas within the premises or activities of the Institute or the activities of other contractor/s working within the premises.

Corrective Action

a) Authority to Stop Work:

The Engineer-in-Charge shall notify the Contractor of any non-compliance with the safety and property protection measures as required under this contract of which the Engineer-in-Charge becomes aware and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's authorized representative at the site of the Work shall be deemed sufficient notice of non-compliance and corrective action required. After receiving the notice, the Contractor shall immediately take necessary steps to correct the action. If the Contractor fails or refuses to take corrective action promptly, the Engineer-in-Charge shall at his discretion after due consultation with the Owner may issue an order stopping all or part of the Work(s) until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop Work order issued under these circumstances.

b) Rectification:

The Contractor shall be solely responsible to make good at his cost any damage to the Works, property of the Owner and/or any adjacent property, to the satisfaction of the Engineer-in-Charge. In case the contractor fails to do so within a reasonable time the Engineer-in-Charge shall get the same executed at the risk & cost of the contractor & deduct the same from his due payments.

15. CLAUSE- Site Security:

The Contractor shall be deemed to be in possession of the Works site and shall be responsible for its total security, and shall ensure that all materials, sheds, equipment, plant, tools, etc.; whether his own or belonging to any Sub-Contractor, are well protected.

a) The Contractor shall at his own cost install and maintain sufficient security fences and gates and employ full time round-the-clock security personnel to prevent the Works site from and against the intrusion of the public or any other unauthorized persons or vehicles.

b) Total security of the site, property, and materials shall be the sole responsibility of the Contractor. The presence of his consultants representatives, or the NU's security personnel shall in no way relieve or absolve the Contractor of his responsibilities in ensuring the security and protection of the site and everything stored or lying thereon

16. CLAUSE: Warranty/Guarantee

The Contractor shall be responsible for the proper performance of the Work(s), including installations and systems, as specified under the Contract Documents.

Subject to Clause the Contractor shall, at his own cost and in the shortest possible time, repair and remove any defect or deficiency in the Works, which may appear prior to or during the defect liability period, to the satisfaction of the Engineer-in-Charge.

A guarantee will be given by the Contractor for the complete installation of the Works including its functioning, replacement of parts etc. as specified under the Contract Documents.

The defect liability period will be 24 months for the project from taking over of the system by the University. However, beyond the Defect Liability Period(i.e. after completion of 24 months), if the manufacturer provides the warranty of the appliances for more than two years, in that case, the warranty/guaranty of the system will be valid as per the OEM practice. All the Guarantees referred above shall commence from the date of Completion Certificate.

17. CLAUSE- Contractor's Responsibilities and Work Control

The Contractor shall have complete control of the Works and shall effectively and diligently control, direct and supervise his employees, supervisors, subordinates and Sub-Contractor(s) so as to ensure timely completion of the Works in order and in conformity with the Contract Documents. It shall be the sole responsibility of the Contractor for construction means, methods, techniques, sequences and procedures, and for coordinating the various parts of the Work, whether carried out by the Contractor or any Sub-Contractor.

The Contractor shall provide adequate, qualified and experienced personnel for the proper superintendence and execution of the Works until completion. The category and strength of such personnel shall be determined by the Engineer-in-Charge, and such approved site organization strength shall be maintained by the Contractor at all times until completion of

Work(s), and also during defects liability period and as may be decided by the Engineer-in-Charge.

a) The Contractor shall study all Contract Documents and promptly report to the Engineer-in-Charge any non-conformity, discrepancy, inconsistency or omission he may discover in the same. In the event of such discovery, the Contractor shall not proceed with the affected Works until he has received due corrections and clearances from the Engineer-in-Charge.

b) The Contractor shall be deemed to have thoroughly studied and satisfied himself regarding Contract Documents and particularly all drawings before commencement of the Work(s).

c) Any instructions given to the Contractor's supervisory staff by the Engineer-in-Charge shall be deemed to have been given to the Contractor. Instructions that involve any variations in design or specifications and which may have a bearing on time and cost shall be through a written Change Order by the Engineer-in-Charge and at rates agreed in writing prior to implementation

The Contractor shall not be entitled to claim additional sums on account of having to work overtime in order to complete an operation that cannot be interrupted, for working in extended shifts / night shifts /holidays.

In the event the Contractor chooses to work overtime, in extended night shifts as and by way of overtime either by working extended/night shifts or morning or holidays in order to complete the Work(s) within the specified period or on holidays, he shall do so by obtaining prior written approval from the Engineer-in-Charge at least twenty-four hours in advance. The Contractor moreover shall ensure that in any of the above circumstances he maintains the full-agreed strength of his supervisory staff.

The Contractor shall not be permitted to replace nor remove his Project Manager/Project Engineer / Site Engineer etc. from the site without the prior written approval of the Engineer-in-Charge.

Submittals

a) "Shop drawings" means those drawings or other documents, which are specifically prepared by or on behalf of the Contractor to illustrate details of construction for the purpose of fabrication or installation and are submitted to the Owner to indicate the Contractor's intended method of achieving the end result required by the Contract Drawings and Specifications.

b) "Project data" includes standard drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the Work required by the. Contract.

Schedules of Submittals

Promptly after contract award the Contractor shall submit to the Engineer-in-Charge the submittal schedule showing when shop drawings, product data required by and under the Tender Documents would be submitted for the approval of the Engineer-in-Charge.

Variation in Submittals

If Submittals contain any variations from the contract requirements, other than those requested on previous submittals, the Contractor shall specifically describe such variations in writing and the reasons thereof to the Engineer-in-Charge. If the approval of any such variation affects the Contract Price or the Completion time of the Contract, the Engineer-in-Charge shall issue an appropriate Contract modification. Otherwise, the variation may be approved by the Engineer-in-Charge, only by specific reference thereto in writing. The Contractor shall not be entitled to rely on general approval of a submittal as an approval of variations of requirements of the Contractor. If the Contractor fails to describe such variations and shall not be relieved from the responsibilities of executing the Work in accordance with the contract, notwithstanding a general approval of such submittals. Nothing contained herein shall relieve the Contractor of the responsibility of notifying the Engineer-in-Charge of any part of the Contract Drawings or Specifications, which the Contractor knows or reasonably should have known which could result in defects under construction.

Use of submittals

The Owner may duplicate, use, and disclose in any manner and for any purpose shop drawings, product data and other submittals delivered under this contract.

18. CLAUSE.- Co-operation with other contractors/specialized agencies/sub-contractors

1) The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupants of the adjacent properties and to the public in general. The Contractor shall take all care, as not to damage any other adjacent property or other services running adjacent to the plot. If any damage is done, the same shall be made good by the Contractor at his own cost and to the entire satisfaction of the Engineer-in-Charge. The Contractor shall use such methodology and equipment for execution of the work, so as to cause minimum environmental pollution of any kind during execution, to have minimum execution time and minimum inconvenience to road users and to the occupants of the buildings on the adjacent plot and public in general, etc. He shall make good at his own cost and to the entire satisfaction of the Engineer in Charge any damage to roads, paths, cross drainage works or public or private property whatsoever caused, due to the execution of the work or by traffic brought thereon, by the Contractor. Further, the Contractor shall take all precautions to attend to the environmental related restrictions imposed by Govt. of Bihar as well as prevent any pollution of streams, ravines, river bed and waterways. All waste or superfluous materials shall be transported by the Contractor, entirely to the satisfaction of the Engineer-in-Charge. Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance as far as possible is caused to the occupants / users of adjoining buildings. No claim whatsoever on account of site constraints mentioned above or any other site constraints, inadequate availability of skilled, semi-skilled or unskilled workers in the near vicinity, non-availability of machinery spare parts and any other constraints not specifically stated here, shall be entertained from

the Contractor. Therefore, the Bidders are advised to visit site and get first-hand information of site constraints. Accordingly, they should quote their tenders. Nothing extra shall be payable on this account.

2) The Contractor shall be responsible for the all site arrangement tools , cleaning etc.

19. CLAUSE: Percentage Rates

(A) The percentage rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profile, setting lay out on ground, establishment of reference bench mark(s), installing various signage, taking spot levels, survey with total station, construction of all safety and protection devices, compulsory use of helmet and safety shoes, and other appropriate safety gadgets by workers, imparting continuous training for all the workers, barriers, preparatory works, construction of clean, hygienic and well ventilated workers housings in sufficient numbers as per drawing supplied by Engineer in charge, working during monsoon or odd season, working beyond normal hours, working at all depths, height, lead, lift, levels and location etc. and any other unforeseen but essential incidental works required to complete this work. Nothing extra shall be payable on this account and no extension of time for completion of work shall be granted on these accounts.

(B) The rates quoted by the bidder, shall be firm and inclusive of all taxes and levies as applicable (including works contract tax and GST as per Clause 38). Labour cess applicable as per relevant Central/State laws will be deducted from every bill of the contractor and deposited to respective Government department. TDS for Income-tax and Works Contract tax as applicable will be deducted from contractors' bills and deposited to respective Government department. The ESI and EPF contributions on the part of employer in respect of this contract shall be paid by the contractor. These contributions on the part of the employer paid by the contractor shall be reimbursed by the Engineer-in-charge to the contractor on actual basis. Effect of any tax due to new legislation shall be adjusted accordingly as per actual on production of documentary proofs of payment of such tax to concerned Government departments.

(C) No foreign exchange shall be made available by the Owner for importing (purchase) of equipment, plants, machinery, materials of any kind or any other items required to be carried out during execution of the work. No delay and no claim of any kind shall be entertained from the Contractor, on account of variation in the foreign exchange rate.

(D) All ancillary and incidental facilities required for execution of work like labour camp, stores, fabrication yard, offices for Contractor, watch and ward, temporary ramp required to be made for working at the basement level, temporary structure for plants and machineries, water storage tanks, installation and consumption charges of temporary electricity, telephone, water etc. required for execution of the work, liaison and pursuing for obtaining various No Objection Certificates, completion certificates from local bodies etc., protection works, testing facilities / laboratory at site of work, facilities for all field tests and for taking samples etc. during execution or any other activity which is necessary (for execution of work and as directed by Engineer-in-Charge), shall be deemed to be included in

rates quoted by the Contractor, for various items in the schedule of quantities. Nothing extra shall be payable on these accounts. Before start of the work, the Contractor shall submit to the Engineer-in-Charge, a site / construction yard layout, specifying areas for construction, site office, positioning of machinery, material yard, cement and other storage, steel fabrication yard, site laboratory, water tank, etc.

(E) For completing the work in time, the Contractor might be required to work in two or more shifts (including night shifts). No claim whatsoever shall be entertained on this account, not with-standing the fact that the Contractor may have to pay extra amounts for any reason, to the laborers and other staff engaged directly or indirectly on the work according to the provisions of the labour and other statutory bodies regulations and the agreement entered upon by the Contractor with them.

(F) All material shall only be brought at site as per program finalized with the Engineer-in-Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.

(G) Rate shall including of Liaison work required, if any, in this regard with the local bodies. Nothing extra shall be payable on this account. Statutory charges, fees etc. required to be paid to the local bodies in this connection shall only be payable by the Owner or shall be reimbursable to the contractor on production of proof of actual payment made by him.

(H) It is clarified that the contractor shall be responsible for obtaining all No-objection certificate (NOCs) and relevant licenses for services like lift installation, electrical installation, fire installation and like. Nothing extra shall be payable on this account.

20. CLAUSE: Rejected Work

The Engineer-in-Charge/or Owner shall be authorized to reject any Work, which in their/his opinion is not in conformity to the specifications set out in the Contract Documents. The decision of the Engineer-in-Charge in this regard shall be final and binding on the Contractor.

CLAUSE.5.19 : Limit of price Adjustment

Provided that, in determining all such price adjustment in accordance with the aforesaid sub-clauses:

- (a) No account will be taken of any amount by which any cost incurred by the contractor has been increased by default or negligence of the contractor.
- (b) If the contractor fails to complete the work within time for completion, increase or decrease of cost of specified materials shall be made using either the indices or prices relating to prescribed time for completion, or the current indices or prices, relating to prescribed time for completion, or the current indices or prices, whichever is more favourable to the Owner, provided that if an extension of time is granted, the above position shall apply to the adjustment made after expiry of such extension of time.

- (c) On completion of the works and before final payment the contractor shall give a certificate that he has made full and complete disclosure to the Engineer-in-Charge of every increase or decrease in price obtained by him on materials affected by this clause.

21. CLAUSE: Exemption from price Adjustment

The following items shall not be included in the price adjustment calculation:

- (A) Liquidated damages:
- (B) Retention withheld and released:
- (C) Advance payments in the form of loans and their repayments:
- (D) The value of any additional or varied work valued at current prices:

22. CLAUSE: Specifications

In the case of any class of work for which there is no such specifications as referred to in detailed specification, such work shall be carried out in accordance with the Bureau of Indian Standards Specifications. In case there are no such specifications in Bureau of Indian Standards, the work shall be carried out as per manufacturers' specifications, if not available then as per C.P.W.D. /District/ state P.W.D. / Specifications. In case there are no such specifications as required above, the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-Charge. Specifications for a type of work are not covered by the detailed specifications/State P.W.D. specifications/I.S.I specifications or particular specifications, the same shall be decided by the engineer-in-charge and shall be binding on the contractor.

The engineer-in-charge shall have the power to insist upon the contractor to purchase and use such materials of particular approved make which may in this opinion be necessary for proper and reasonable compliance with the specifications and execution of work.

In the event of any variation/discrepancy in the drawings, specification and tender documents, the decision of the Engineer In charge shall be final, binding and conclusive on the contractor.

23. Quantity and Rate for supply: The quantity mentioned in the BOQ is tentative, and therefore the actual quantity will be confirmed based on the shop drawings and actual site requirement. The System Integrator or contractor will be bound to supply any number of quantities required for the project on the same price quoted by them. The University reserves the right to increase or descope the quantity without any confirmation from the contractor and payment will be made based on the actual quantity recoded in measurement book or confirmed by the NU all at a time of phase manner as the case may be.

Quality Assurance

1. GENERAL

- 1.1. Special Conditions of Contract shall be read in Conjunction with the General conditions of Contract, specification of work, Drawings , technical data sheet , OEM certificates and any other

documents forming part of this Contract wherever the context so requires.

1.2. Drawings:

The Drawings, which may be issued with tenders, are diagrammatic only and indicate arrangement of various systems and the extent of work covered in the contract. These Drawings indicate the points of supply and of termination of services and broadly suggest the routes to be followed. Under no circumstances shall dimensions be scaled from these Drawings. The architectural/interiors drawings and details shall be examined for exact location of equipment's and cutouts.

The contractor shall follow the GFC drawings in preparation of his shop drawings, and for subsequent installation work. He shall check the drawings of other trades to verify spaces in which his work will be installed.

Maximum headroom and space conditions shall be maintained at all points.

1.3. Equipment Receipt Checklists:

On arrival of any Equipment's on site, Contractor has to inform Engineer In charge well in time and has to submit a material Inspection report stating the physical inspection and technical data. The report should be signed and documented as a part of project documents.

1.4. All works will have to be done in close co-ordination with all other disciplines like Civil, Plumbing, HVAC & Electrical service to avoid infringement with any of the MEP associated works.

1.5. Tools, Tackles, Equipment's & Scaffolding:

All tools, tackles & equipment necessary for installation and testing shall be provided by the contractor. The quoted rates shall take into account for providing any such equipment, which may not form part of the installation, but are necessary for the execution of the job. Contractor shall be responsible to make his own arrangement to provide scaffolding / supports etc., necessary for his work.

1.6. Manufacturers:

Where manufacturers have furnished specific instructions relating to the materials used in this job, covering points not specifically mentioned in these documents, these instructions should be followed in all cases.

Where manufacturer's names and/or catalogue numbers are given, this is an indication of the quality, standards and performance required.

For items not covered under the List of Approved Makes', contractor shall offer items of first class quality, standards and performance and obtain the approval of Engineer In charge/Consultants before procuring them.

Where interfacing occurs, equipment shall be mutually compatible in all respects.

1.7. Technical Data

All technical data to be filled by the bidders in Technical specs shall be accepted in metric system or after the approval from Engineer In charge only. Any bidder submitting the technical data in any other unit would render his bid liable for rejection. The technical data should be typed in capitals only.

1.8. Bye-laws and Regulations

The installation shall be in conformity with the Bye Laws, regulation and standards of the local authorities concerned in so far as these become applicable to the installation. But if these specifications and drawings call for a higher standard of materials and /or workmanship than those required by any of the above regulations and standards, than these specifications and drawings shall take precedence over the said regulation and standards. However, if the drawings and specifications require something which violates the Bye-laws and regulations, then the bye laws and regulations shall govern the requirements of this installation.

All cabling, i.e., supply, laying, termination and testing for transmission of video/audio over respective AV cables such as shielded twisted pairs CATx, HDMI, VGA + Audio, DVi, HD-SDi, RS-232 and other control cabling for AV equipment such as between AV rack (containing AV equipment such as switchers, controllers, DSPs and CAT5x/6 transmitter-receivers) and AV field devices (such as projectors, CAT5x/6 transmitter-receivers etc.) shall be within the scope of the Bidder. **Also minor civil work such as chipping, grouting etc. shall be within the scope of bidder.**

Also, Ethernet LAN cabling for AV equipment such as for accessing their web browsers for management and control of AV devices shall be within the scope the Bidder (e.g., projectors, DSP, switchers etc.). LAN configuration for supplied LAN switches and AV Wi-Fi routers shall be within the scope of the Bidder.

The centralized equipment such as MCU, Streaming and Recording devices shall be installed in main ELV server room or as per client's requirement.

Based on the makes and models intended to be supplied from the acceptable list of makes and prior to the commencement of work, the Bidder shall submit their technical proposal for approval, consisting of the following:

- a. Shop drawings consisting of equipment layouts (furniture and RCP co-ordinated).
- b. Shop drawings consisting of schematic layouts.

- c. Shop drawings consisting of conduit layouts & cable routing plan.
- d. Lens calculations and other such optics related calculations for projectors in respect of screen sizes and throw distance.

Upon completion of work and prior to handover, the Bidder shall submit 3 sets of duly laminated as-built drawings and documentation as mentioned below:

- a. Final equipment layouts (furniture and RCP co-ordinated) – AutoCad & pdf format, clear copy of which shall be permanently fixed inside respective AV rack.
- b. Final schematic layouts - AutoCad & pdf format, clear copy of which shall be permanently fixed inside respective AV rack.
- c. Final conduit layouts - AutoCad & pdf format, clear copy of which shall be permanently fixed inside respective AV rack.
- d. Final cable routing plan – cable schedule, cable IDs, labelling and documentation, type of cable, no. of cables etc. - AutoCad & pdf format, clear copy of which shall be permanently fixed inside respective AV rack.

The Bidder shall carry out and furnish audio test parameters such as – SPL, S/N Ratio and Room Equalization.

The Bidder shall obtain required SDKs (Software Development Kits) and APIs (Application Programming Interface) for various interfacing and integration requirements of the AV system.

For all AV systems, the core software, operating software, application software and GUI etc. as applicable shall be of the latest versions. The upgrades and enhancements of the software images, core software and firmware for all equipment under this scope shall be free (without any extra cost) to the client till the defect liability period.

The Bidder is advised to inform the Engineer-in-Charge or client, of any specific requirements related to their equipment such as heat dissipation, earthing or grounding, UPS, ventilation or any other required site pre-conditions, in writing before supply and commencement of work so as to incorporate the same at site by other agencies.

The Bidder is advised to specifically use items only from the list of acceptable makes and provide information on compliance of performance specifications in the prescribed format.

Make of components required to be used by Bidder to complete the installation, if not mentioned anywhere, shall be required to be approved from Engineer-in-Charge or client in writing before installation.

At the time of handing over of the installation to the client, the Bidder shall provide a week's training to the designated personnel of the client.

The Bidder shall depute qualified and well-trained engineers for the installation and commissioning of the AV system as well as for the Operations & Maintenance of the AV system.

OPERATION, MAINTENANCE AND TESTING:

A) Operation:

1. One Customer Support Engineer (BE Electronics or equivalent) and 1 Technicians (Diploma holders) each having an experience of minimum 3 years in Audio Visual Systems shall be employed by the Bidder, to be posted during normal university working hours at Nalanda University Campus, Rajgir, Bihar.

B) Comprehensive Maintenance:

The Maintenance responsibility shall include:

1. Comprehensive Maintenance of AV system as a whole comprising of all components & equipment of the BoQ installed in the various areas such as, but not limited to, Class Rooms, Meeting Rooms, Conference Rooms, Board Room and VC Room for all such equipment such as, but not limited to, video equipment, projectors, speakers, amplifiers, DSP processors, audio mixers, microphones, chairman-delegate system, including repairs, servicing, replacements of defective parts & equipment's and software up-gradation etc., complete as required to keep the system fully functional.
2. Preventive Maintenance of the AV system shall also be done by the Bidder. The Bidder shall provide a schedule for the same in consultation with the Engineer-in-Charge or the client.
3. The arrangement for importing of spares & equipment as required including that of foreign exchange, if any, shall be the responsibility of the Bidder.
4. Replacement of all consumable items shall be the responsibility of the Bidder.
5. The spare & equipment to be used for repairs/replacement shall be of the same make & specification as provided originally in the AV system.
6. The Bidder must take all the necessary precautions/measures so that there is no breakdown during any of the meetings/academic sessions. The Bidder has to attend to any fault immediately or has to provide suitable alternative immediately so that the proceeding of the meetings/academic sessions are not disturbed/hampered.
7. During installation, commissioning and operations and maintenance activity, the Bidder shall make adequate safety provisions for the safety of their service personnel. Any equipment for installation,

commissioning and operations and maintenance activity as well as safety related equipment shall be arranged for by the Bidder.

8. Any testing and measuring equipment and other facilities required for the work shall have to be arranged for the Bidder.

C) Testing Plan and Handing Over

The Bidder shall provide operations manual with sufficient visual information such as screen shots, voice-over for instructions etc. for the installation-specific items of the AV system, e.g., but not limited to, wired control panel and other such items.

At the time of handing over of installation to the client, for all equipment that are covered under SITC, the Bidder shall transfer all warranties and guaranties from OEM – original equipment manufacturer – to the client.

After successful installation of equipment, the AV System integrator shall carry out the following tests to the satisfaction of the Engineer-in-charge/NU representatives.

1. Operational Instructions

Sr. No.	Description	Remarks
1	As-built system schematic diagrams shall be provided and which shall be pasted on the inside of the AV rack.	
2	For all such drawings revision numbering and date of revision shall be documented and available at rack itself.	
3	The procedure for powering up or starting up the AV rack shall be provided and pasted on the inside of the AV rack.	
4	A step-by-step visual walk-through shall be provided for start-up procedure as well as operating procedure including for various menus, wired button panel etc.	
5	Screenshots of programming and operations' steps shall be provided	
6	A customized operational manual for each room/type of room shall be provided which shall include instructions for equipment as actually installed in that room.	

2. LIST OF ACCEPTABLE MAKES / MANUFACTURERS

Sr. No.	Item Description	Acceptable Make/Brand/Manufacturer
1	Video Signal Equipment – Switcher, Cable Cubby, Scalars, Extenders for HDMI, VGA, Distribution Amplifiers, Control Processor, Wired Button Panel etc.	Crestron, Extron, Kramer
2	Wireless Touch Screen device for Control (iOS or Android based).	Apple, Samsung
3	Lecture Recording and Streaming Device	Extron, Lumens, Mediasite, Panopto
4	i) Live Streaming and VoD Application Software Platform, Hosting Solution	
	ii) Servers and Storage for Live Streaming and VoD Platform as above; OS platform and other environment such as databases etc., if any, shall be as per software application OEM requirements	Dell, HPE, Lenovo
5	Wireless Presenter System	Barco, Vivitek, Crestron
6	Lecture Capture Camera (AV Camera)	Lumens, Sony, Panasonic
7	Document Camera – Ceiling Mounted and Desktop Mountable	Lumens, Vaddio, WolfVision
8	Video Conferencing Endpoints – Codecs, Camera & Mic POD	Cisco, Polycom, Avaya,
9	Digital Podium with 22" Interactive Panel	AHA, Tecom, UNI
10	19" Touch Enabled Display	Acer, Planar, Parblo, Viewsonic
11	Desktop PC for AV	Dell, HP, Lenovo
12	Ultra Short Throw /Laser Projectors – 5000, 6000 and 15000 Lumens, 1-Chip DLP	Barco, Christie, Digital Projection
13	Motorized Projection Screens	Dalite, Draper, Prima
14	19", 55", 65" LED Display	Panasonic, Samsung, LG

15	Wired and Wireless Microphone System including cables for wireless antenna	Beyerdynamic, Electrovoice, Sennheiser, Audio Technica
16	Microphone, Speaker and Control Cable	Belden, Klotz, Kramer
17	Audio DSP	Bi-amp, Bose, Audio Technica
18	4" and 3" Speakers, 12" & 15" Loudspeaker and Subwoofer	Bose, Electrovoice, Tannoy
19	Column Speakers	Bose, Renkus-Heinz, Tannoy
20	Audio Amplifiers	Bose, Dynacord, Labgruppen, Power Soft
21	AV Racks	APW Vero President, Panduit, Rittal, Dynamic
22	Digital Audio Conferencing System	Beyerdynamic, Bosch, Sennheiser, Shure, Telvic
23	Video Cables (HDMI, VGA+Audio, DisplayPort DP/miniDP) and USB, Shielded CAT6 cable	Crestron, Extron, Kramer, Kanex Pro
24	AV Networking Switch and AV-Wireless Access Point	Cisco, HPE, Juniper, Allied Telesis
25	Mixer	Behring, Allen & Heath, Yamaha
26	AV Connectors as may be required	OEM Standard or Amphenol, Neutrik
27	Smart Lesson Capture & Faculty Development/Reflection System	IRIS, Onvu Learning

3. CO-ORDINATION WITH CIVIL WORKS

To prepare detailed shop/ working drawings for related works in accordance with the civil construction drawings.

4. CO-ORDINATION WITH HVAC, ELECTRICAL, PHE WORKS

To co-ordinate all relevant information regarding power and exact location of panels.

EXECUTION:

The SI has to execute in already laid conduits/ducts, however, in case of the design optimization and any hindrance in existing route, the SI will have to execute the job within scope (without any additional cost for minor chipping, route laying and cleaning).

5. PROJECT EXECUTION AND MANAGEMENT

The Contractor shall ensure that senior planning and erection personnel from his organization are assigned exclusively for this project. The Contractor shall appoint one Project Manager holding senior management position in the organization. He shall be assisted on full time basis

6. COMPLETION (AS BUILT) DRAWINGS

Upon completion of the work and before issuance of certificate of virtual completion the contractor shall submit to the Owner's site representative four sets of layout drawings in progressive manner for individual systems drawn at approved scale indicating the complete system as installed. Drawings shall be prepared on AUTO-CAD (latest version). Along with the hard copies, the contractor shall submit copies of all drawings on CD and one set of all drawings on Rich Text Format shall also be submitted. These drawings must provide:

- a) Any equipment related details like foundation, accessory, Project specific typical details and general details.

7. INITIAL INSPECTION AT SITE

All equipment's received at site shall be checked for conformity to technical specifications and approval of the Data sheet by the Engineer In charge NU. Any equipment or material violating the above requirement shall be out rightly rejected and shall be removed immediately from the site.

8. SAFETY:

The safety conditions shall not be regarded as exhaustive. These have been issued for the guidance of the Contractor and will not in any way

absolve the Contractor from any such obligations or liabilities he might incur or transfer such obligations or liabilities to the Owner.

- a) The Contractor shall obtain a Work Permit from the Engineer in Charge before starting any work on site. The work permit is issued to prevent contractors working in unauthorized areas and will be valid for specific area for a limited period as mentioned on the permit. Contractor shall duly return the work permit after the completion of the job or on expiry of the permit.
- b) Extra care need to be taken for jobs being carried out after normal working hours with due revalidated work permit.
- c) Head and eye protection and safety equipment are to be worn at all times as per job requirements.
- d) The Contractor shall remove all the waste material and rubbish from and around the work site that was caused by the contractor and leave the job thoroughly cleaned up, ready for use. No combustible material is to be stored on or near any source of heat, and before leaving the work place contractors employees should ensure that nothing is left which could start a fire. Contractor shall indemnify Owner from any and all claims, damages or penalties and will remain liable for the losses caused to Owner as result of Contractors non-compliance of the said requirements.
- e) All precautions necessary for not only for the safe working of the contractors workmen at site shall be taken by the contractor, but he shall also deploy all precautions to safeguard existing structures, equipment and persons of other agencies in and around the job site

9. PERFORMANCE GUARANTEE

The contractor shall carry out the work in accordance with the Drawings, Specifications, Schedule of Quantities and other documents forming part of the Contract.

The contractor shall be fully responsible for the performance of the selected equipment (installed by him) at the specified parameters and for the efficiency of the installation to deliver the required end result. The replacement warrantee of different items is as mentioned in specification.

At the close of the work and before issue of final certificate of virtual completion, the contractor shall furnish written performance guarantee against defective materials and workman-ship for a period of two years from date of testing, commissioning and taking over.

The Contractor shall hold himself fully responsible for reinstallation or replacement, free of cost to Owner the following:

- a. Any defective work or material supplied by the Contractor.
- b. Any material or equipment damaged or destroyed as a result of defective workmanship by the Contractor.

10. UPTIME GUARANTEE

The contractor shall guarantee for the installed system an uptime of 99%. In case of shortfall in any month during the defects liability period, the Defects Liability period shall get extended by a month for every month having shortfall. In case of shortfall beyond the defects liability period, the contract for Operation and Maintenance shall get extended by a month for every month having the shortfall and no reimbursement shall be made for the extended period.

The Contractor shall provide log in the form of diskettes and bound printed comprehensive log book containing tables for daily record of all temperatures, pressures, humidity, power consumption. starting and stopping times for various equipment, daily services rendered for the system alarms, maintenance and record of unusual observations etc. Contractor shall also submit preventive maintenance schedule.

Each tenderer shall submit along with the tender, a detailed operation assistance proposal for the Owner's site representatives/Consultant's review. This shall include the type of service planned to be offered during Defects Liability Period and beyond. The operation assistance proposal shall give the details of the proposed monthly reports to the Management.

The tenderer shall include a list of other projects where such an Operation Assistance has been provided.

11. QUIET OPERATION AND VIBRATION ISOLATION

All equipment shall operate under all conditions of load without any sound or vibration which is objectionable in the opinion of the owner's site representative. In case of rotating machinery sound or vibration noticeable outside the room in which is installed. Or annoyingly noticeable inside its own room, shall be considered objectionable. Such conditions shall be corrected by the contractor at his own expense. The contractor shall guarantee that the equipment installed shall maintain the specified db/NC levels.

12. MAINTENANCE AND OPERATION DURING DEFECTS LIABILITY PERIOD

Contractor is responsible to provide a comprehensive Operation and maintenance for the system installed and commissioned by him for a minimum of **Two (2) years** and is covered under this defect liability period. The defect liability period shall start from the **Date of Taking over** of the system by the University. Contractor shall take actions as described below but not limited to:

1. Complaints

The Contractor shall receive calls for any and all problems experienced in the operation of the system under this contract, attend to these within 24 working hours of receiving the complaints and shall take steps to immediately correct any deficiencies that may exist. Corrective actions to

problem experienced, if takes longer time, shall be complied 100% by during next 2 business days.

2. Repairs

All equipment that requires repairing shall be immediately serviced and repaired. Since the period of Mechanical Maintenance runs concurrently with the defects liability period, all replacement parts and labour shall be supplied promptly free-of-charge to the Owner.

13. INSTRUCTION, OPERATION AND MAINTENANCE MANUAL

The Contractor shall prepare and produce instruction, operation and maintenance manuals in English for the use, operation and the maintenance of the supplied equipment and installations, and submit to the Engineer In charge/ Consultants in three (3) copies at the time of taking over. In addition, one set with editable version will be given on compact disc. The manual shall generally consist of the following:

- a) Description of the project.
- b) Operating instructions.
- c) Maintenance instructions including procedures for preventive maintenance.
- d) Manufacturers catalog.
- e) Trouble shooting charts.
- f) Drawings.

14. TRAINING

The concerning vendor shall be liable to impart training to the field personnel or Engineer appointed by Owner responsible for daily operations and maintenance. Such trainings shall consist of but not limited to following:

- a) Providing classroom training as well as field training. The duration of classroom training shall be minimum of **03** hours and that of field training shall be **05** hours.
- b) The concerning vendor shall provide such training for each building and systems.
- c) Training syllabus shall be submitted and approved in prior by "Engineer In charge".
- d) Providing video recording of every such training and shall submit 4 copies of training videos in CD/DVD/Pen drive to "The Client".
- e) Wherever required representatives of respective OEM shall be present at the time of imparting training and ensuring all necessary information shall be imparted to the owner's representative.
- f) The concerning vendor shall be liable to arrange required representatives of respective OEM during training.

15. OPERATING INSTRUCTIONS

The contractor shall submit a draft copy of comprehensive operating instructions and maintenance schedule for all systems and equipment included in this contract. This shall be supplementary to manufacturer's operating and maintenance manuals. Upon approval of the draft, the contractor shall submit four (4) complete bound sets of typewritten operating instructions, maintenance schedules, and log books.

The manual shall be carefully indexed and shall include sections on:

- a) General description of equipment's & systems.
- b) Handbooks operation & maintenance instructions of manufacturers.
- c) Drive List
- d) Technical Particulars of Equipment's
- e) Start-up & stopping procedure.
- f) Procedure & setting of Controls
- g) List drawings
- h) Schedule of spare parts essential & others.

16. COMPLETION CERTIFICATE

On completion of the installation a certificate shall be furnished by the contractor countersigned by the licensed supervisor, under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as required by the local statutory authority. The contractor shall be responsible for getting the installation inspected and approved by the local concerned authorities and for obtaining the necessary clearance certificates from the authorities.

17. COMPREHENSIVE ANNUAL MAINTENANCE & OPERATION SERVICE

Contractor shall be required to carry out the operation and Maintenance of the AV systems installed by him for the defects liability period and if found satisfactory by the university then this may be extended by the University for further 3 years. However, during the operation, a snag list may be issued to contractor for further modification without any cost implication.

- a) Operation contract
 - i) 24 hours a day, year round for full load
 - ii) All stand-by equipment to be operated as per mutually agreed program.
 - iii) Proper entry and upkeep of relevant log books.
 - iv) Maintain complaints register. Submit weekly report.
 - v) Proper housekeeping of all areas under the contract.

- b) All Inclusive Maintenance Contract

- i) Scope.

The AMC shall cover all the items installed by the contractor

- ii) Routine Preventive Maintenance Schedule to be submitted

- Schedule to cover manufacturer's recommendation and/or common engineering practice (for all equipment's and related accessories, cables, wires, panels etc under contract).
- Equipment's history card giving full details of equipment and frequency of checks and overhaul.
- Monthly status report.

c) Uptime during maintenance contract

- i) 99% uptime of all systems under contract.
- ii) Up time shall be assessed every month and in case of shortfall during any month the contract shall be extended by a month.
- iii) There shall be no reimbursement for the extended period.
- iv) Break-downs shall be attended to within ten hours of reporting.

d) Manpower

- i) Adequate number of persons to the satisfaction of the Owner's site representative shall be provided including relievers.
- ii) Statutory requirements of EPF, ESIC and other applicable labour legislations to be complied with; and monthly certification to that effect to be submitted.
- iii) Duty allocation and Roaster control shall be contractor's responsibility.
- iv) No overtime shall be payable by Owner for any reason whatsoever.

e) Shut Downs

- i) Routine shut downs shall be permitted only as allowed by the Chief Engineer.
- ii) Contractor shall be at liberty to carry out routine maintenance as and when required but with prior permission of the Owner.

f) Security Deposit and Performance Guarantee

The Contractor shall provide Security deposit and Performance Guarantee in the form of Bank Guarantee amounting to 3% of the total AMC and O&M contract value on start of the AMC and O&M period post DLP period.

18. TIME FOR COMPLETION

Time for completion for all the works shall be as per the Project Time Line Matrix from the date of issue of Letter of Intent (LOI).

The work shall be executed strictly as per the Time Schedule, working drawings and specification of the items included into the schedule of items. The period of work given includes the time required for mobilization and completion in all respects to the entire satisfaction of the Engineer-in-Charge.

- a) The time for completion mentioned above shall be inclusive of any monsoon following within the aforesaid time for completion. Delay/ held up of work on account of monsoon/ rain will not be considered for granting of additional time to complete the work.

19. WARRANTIES AND GUARANTEES

All manufacturers' warranties & guaranties for the equipment supplied by the contractor shall be passed on to the owner.

20. CONTRACTOR PERSONNEL AT SITE:

List of persons employed by Contractor for the subject work mentioning their residential address shall be submitted to Nalanda University. In case of any revision, the same shall be informed to NU from time-to-time.

The Contractor shall be directly responsible for any/all disputes arising between him and his personnel and keep indemnified NU against all losses, damage and claims arising thereof.

Within the Nalanda University premises, the Contractor's personnel shall not do any private work other than their normal duties.

The contractor may also be required to provide photo passes to the personnel required by him, for security and safety reasons and furnish the details of the same when asked for.

Contractor shall be fully responsible for theft, burglary, fire or any mischievous deeds by his staff and any loss to Nalanda University shall be recovered from the immediate bill of the Contractor.

Contractor shall provide all necessary tools and tackles, equipment's, safety belt, wheel burrow, scaffolding, ladders, drilling m/c & safety equipment etc. required to carry out job at his cost and material used by Contractor shall be of standard make and approval of Engineer-In-Charge shall be taken for the same.

Engineer In-charge also reserves the right to ask the Contractor to remove particular person(s) from site with immediate effect if his behavior/ performance is not up to the mark and/or found indulging in unlawful activities, Contractor shall immediately comply with such instructions.

It will be the responsibility of contractor's engineer to ensure that their personnel behave in a proper manner and behavior and not to undergo the argument with the employees. It will be the responsibility of the Contractor's Engineer to deal with such complaints or co- ordinate with the University Engineer.

21. Compliance of various rules and regulations during execution of AV works in line with Green Building norms as per GRIHA.

All measures will need to be complied with by the CONTRACTOR and supervised by Nalanda University in order to assure that the right information is obtained on the required manners and time. This information will have to be sent to the Owner/Architect, on a forth night basis.

SLA (Service Level Agreement) during C-AMC period:

The SLA is being defined to get the quick/prompt response and effective Defect Liability Period and O&M Period. Therefore, the comprehensive AMC with onsite support is being given together with the Defect liability period to avoid any kind of the allegations, delay and excuses from the contractor. The SLA will be signed after execution of the Design, Supply, Installation, Testing and Commissioning of all the AV works as per the BOQ of the NIT. The SLA shall be executed after successful completion and handing over/taking over formality. The effective start date of AMC period shall be declared jointly after taking over formalities. The main works shall be closed after successful completion of the execution period of main the work and a supplementary agreement shall be signed. The Format of the agreement will be as provided in the CPWD works manual. The date of the agreement shall be reckoned from the date of handing/taking over formalities. The period of the AMC agreement will be initially for the defect liability period after DLP the AMC and onsite manpower support may be extended on mutually agreed upon.

SLA Objectives

The contractor is required to provide utmost service satisfaction and minimum 99 % overall uptime. Contractor shall provide support on-site in terms of AMC along with warranty and operation support services.

SCOPE OF SLA:

The Defect liability period of the all the equipment is 24 months after completion of execution of SITC job and final taking over by the University and the comprehensive Maintenance and O&M for all the systems installed in this contract shall be for further 36 months after completion of Defect Liability period.

For the above said period 24 months of DLP and 36 Months of Comprehensive AMC, the contractor has to extend onsite support. The on-site support, contractor will provide at least **One** Network/AV Engineer and **one** certified Technician during normal working hours.

The deployed technician on behalf of the agency/contractor shall maintain a logbook of the all the installed equipment's for AV and register all the faults & incidents, if occurred. The contractor will draft the logbook format for its approval before the Engineer in-Charge in accordance of the manufacturer guidelines.

The contractor has to attend all the faults during operation period/services. In case of any defect shall be attended and replacement of the equipment shall be performed

during the Defect Liability Period. No any extra cost shall be bear by the University during the DLP for the replacement of the equipment.

The safety measures shall be taken care by the contractor to ensure the safety of human and equipment.

The contractor has to make payment as per the minimum wage rule as per the applicable category and area on monthly basis, and he proof shall be submitted along with the bill invoice.

The contractor will submit the details with a copy of the qualifications, Experience proof, identity proof and police verification report to the University. In case of any changes in the deployment of the manpower staff at site minimum one week of common period shall be maintained by the contractor under intimation of the reporting officer of the University. The engineer must be experienced and well conversant of the operating and maintenance procedure.

The University reserve right to expel or recommend to the contractor to remove the particular or all deployed staff on the observation of any malpractice, illegal involvement. Unsatisfactory works, unsatisfactory and miss-behaviours, delay in response and unethical practise. The contractor shall be bounded to replace the staff in such cases.

The University will not be responsible for any case or illegal involvement, compliance of the labour court/University's, accidental support/claim or any. The contractor will be solely responsible for all the affairs related to the deployed manpower at the site. If any technician or helper will be absent during the concerned shift, then INR 1000/- per shift per Technician and INR 800/ per shift per helper shall be recovered.

If any recovery amount (either due to deduction in manpower and its compliance or due to defect liability of material) exceed than the AMC amount, then same amount shall be recovered from the security deposited with the University. The maximum allowable time for the replacement of the appliances will be 48 Hours. However, meanwhile the makeshift arrangement shall be made by the contractor and no any extra payment shall be made.

In the compelling circumstances, if required then the University may also replace the damaged material and recovery shall be made from the AMC and if required then from the Security deposited with NU and even after this the expenditure exceeds then contractor has deposited the balance amount. In case of non-responsive event from the contractor, the University may debarred or blacklist to the contractor. During the handing over of the system, the address of the local and central service & repair centre shall be provided by the contractor.

Security Deposit and Performance Guarantee:

The Contractor shall provide Security deposit and Performance Guarantee in the form of Bank Guarantee amounting to 3% of the total AMC and O&M contract value on start of the AMC and O&M period post DLP period.

SLA Duration

Timings : 8 Hours Daily (9 A.M. – 5P.M.)

Period : Five years (from the date of successful commissioning and Acceptance of equipment's)

SLA Manpower Requirements and working requirements

- Contractor shall deploy suitably qualified and experienced sufficient manpower in shifts to meet out the SLA. Minimum personnel's required to be deployed are as under.
 - For AV System: One Network / AV engineer should be available during normal working hours..

- Contractor shall appoint as many team members, over and above the manpower specified, as deemed fit by them, to meet out the time Schedule and SLA requirements. NU would not be liable to pay any additional cost for this.
- Contractor shall always maintain above minimum manpower on-site throughout the period of the contract.
- Warranty/AMC involves comprehensive maintenance and repairs of all hardware and/or software for the said systems, including free of cost replacement of parts, consumables if any, modules, sub-modules, assemblies, sub-assemblies, spares, checking of instrument health, etc to keep the system operational.
- Bidder should ensure 99.0 % availability of the all the systems. This will include all kind of breakdown, corrective & preventive maintenance
- The system availability shall be calculated on monthly basis or as per the mutual agreement. Availability will be based on the report of representative of NU, based on system logs, equipment logs, downtime and rectification reporting etc. In case the availability for each of the system under Warranty/AMC is less than 99 % the non-performance deduction from payments for the system under Warranty/AMC shall be as per the following table:

Sr. No	Uptime	Non- performance deduction in each case
1.	99% or above	No deduction
2.	Less than 99% up to 95%	5% of the annual Maintenance contract value for the month excluding taxes.
3.	Less than 95% upto 90%	10% of the annual maintenance contract value for the month excluding taxes.
4.	Less than 90%	15% of the annual maintenance contract value for the month excluding taxes on Pro rata basis.

Calculation for downtime of Service:

Working Hours: 9:00 AM to 06:00 PM = 540 minutes

As only 1 % downtime i.e. 5.4 minutes (1% of 540 minutes) daily is allowed as acceptable downtime as per the Supplier's conditions for maintenance and service. In case the system of the service provider remains un-operational during the whole day, 9 hrs straight will be considered as downtime. In case of partial closure of the system, the duration for which it remains un-operational will be considered as downtime. At the end of the month, all such un-operational time duration will be summed up to arrive at the total downtime. The downtime monthly can be calculated as follows

Downtime (in %age) =

$((\text{Summed up downtime in min}) / (\text{Working Days in month} * 540)) * 100$

Calculation of Penalty

Let us consider the following example:

The Total service provider SI's Monthly O & M Service charges Bill is for Rs 2,00,000/-

Downtime Calculation:

e.g. Assuming Total working days:= 24 days (24 * 540 = 12960 minutes)

Acceptable downtime = 1 % (i.e. $12960 \times 0.01 = 129.6$ minutes)

Suppose the total downtime after one month (24 working days) is 500 minutes.

As the acceptable downtime is 1% (129.6 minutes), therefore beyond 129.6 minutes of downtime (*upto 1% of down time no penalty will be considered, however beyond 1%, the down time including 1% of time will be considered*), penalty will be started including initial threshold 1% also.

Total of 500 minutes is liable for imposing penalty as this is more than tolerable value of 1%.

Hence, the total downtime in % liable for imposing penalty will be:

$$= (500 / 12960) * 100$$

$$= 3.85\%$$

Hence, penalty applicable for the concerned month will be $(3.85/100) \times 200000 =$ Rs 7716.00/-

- The agency will submit the healthiness certificate of all the equipment regular basis at least once in a two month. The Resident Engineer any other staff shall be stationed at Rajgir and before leaving the Rajgir permission of the official concerned from Nalanda University will be required.
- Replacement Approval: Before replacement, if required, of the appliances/system/parts thereof, the AMC service provider will take approval from the in-charge.
- Experienced and Suitable Resident Engineer: Before deployment of the Resident Engineer, the AMC service provider shall submit the CV in details followed by an interview and seek approval for the deployment of the personnel. Experience of the resident Engineer should not be less than 3 years for the graduate engineer and 3 years in case of diploma engineer. However, the university decision in this regard will be final to approve for the deployment of any suitable number of experience year as deemed fit for the University. The AMC service provider will deploy one qualified resident Engineer. Who will handle the hardware and allied software issues and will handle the Networking system.
- The AMC service provider should have back to back tie-up with the OEM and its authorized service provider.
- The AMC service provider may replace the hardware similar or better configuration to ensure the genuineness.
- Before replacement of the material/spare parts, the service provider will take approval of the IT in charge from Nalanda University.
- Spare Parts in stock: The Service provider will prepare a list duly verified by the IT In-Charge, and sufficient stock shall be maintained to avoid the last hour rush. Makeshift arrangement: In case of replacement or anticipated delay, the service provider will ensure the makeshift arrangement of the spares and personnel.

Tie up with OEM/ Manufacture

The Contractor should have back-to-back arrangements with OEM/Manufacturer for warranty support for a period of Two years and AMC period of Three Years

It is the responsibility of the Contractor to provide certification of OEM/Manufacture for complete support for the period of Seven years in case of product upgrades or discontinue of product and has sufficient provision for spares.

SERVICE LEVEL AGREEMENT FORMAT

THIS AGREEMENT is made on [Month, day, year]

BETWEEN

1. **Nalanda University** to be called (the "Buyer"); and
2. [_____] of (the "Service Provider"),

collectively referred to as the "Parties". **RECITALS**

The Buyer wishes to be provided with the Services (defined below) by the Service Provider and the Service Provider agrees to provide the Services to the Buyer on the terms and conditions of this Agreement.

1. Key Terms

1.1 Services

The Service Provider shall provide the following services ("Services") to the Buyer in accordance with the terms and conditions of this Agreement:

Contractor shall be required to carry out the operation and maintenance of the AV system for the defects liability period of 24 months and for further period of 60 months for operation and maintenance. However, during the operation, a snag list may be

issued to contractor for further modification without any cost implication.

a) Operation contract

- i) 24 hours a day, year round during working office hours for full load
- ii) All stand-by equipment to be operated as per mutually agreed program.
- iii) Proper entry and upkeep of relevant log books.
- iv) Maintain complaints register. Submit weekly report.
- v) Proper housekeeping of all areas under the contract.

b) All Inclusive Maintenance Contract

iii) Scope.

The AMC shall cover all the items installed by the contractor including but not limited to replacement of all equipment's, racks, Patch panels, Cables, etc.

iv) Routine Preventive Maintenance Schedule to be submitted

- Schedule to cover manufacturer's recommendation and/or common engineering practice (for all plant and machinery under contract).
- Plant and machinery history card giving full details of equipment and frequency of checks and overhaul.
- Monthly status report.

c) Uptime during maintenance contract

- v) 99% uptime of all systems under contract.
- vi) Up time shall be assessed every month and in case of shortfall during any month the contract shall be extended by a month.
- vii) There shall be no reimbursement for the extended period.
- viii) Break-downs shall be attended to within ten hours of reporting.

d) Manpower

- v) Adequate number of persons to the satisfaction of the Owner's site representative shall be provided including relievers.
- vi) Statutory requirements of EPF, ESIC and other applicable labour legislations to be complied with; and monthly certification to that effect to be submitted.
- vii) Duty allocation and Roaster control shall be contractor's responsibility.
- viii) No overtime shall be payable by Owner for any reason whatsoever.

e) Shut Downs

- iii) Routine shut downs shall be permitted only as allowed by the Chief Engineer.
- iv) Contractor shall be at liberty to carry out routine maintenance as and when required but with prior permission of the Owner.

1.2 Delivery of the Services

- a. **Start date:** The Service Provider shall commence the provision of the Services from the **date of taking over of the installation by the University.**
- b. **Completion date:** The Service Provider shall complete/cease to provide the Services **by the end of Five years from the date of taking over of the installation by the University**

1.3 Site

The Service Provider shall provide the Services at the following site(s): Outreach center

1.4 Price

- a. As consideration for the provision of the Services by the Service Provider, the price for the provision of the Services for the defect liability period is included in the tender cost.
- b. The Buyer shall not pay for any of the Service Provider's out-of-pocket expenses as it shall be all considered in the above mentioned price. The price shall be inclusive of all taxes, duties, GST, approval costs etc required by the bidder to render the services effectively for the contract.

1.5 Payment

- a. The method of payment of the Price by the Buyer to the Service Provider shall be by:
 - i. NEFT/RTGS/ONLINE TRANSFER
- b. Any charges payable under this Agreement are inclusive of any applicable taxes, tariff surcharges or other like amounts assessed by any governmental entity arising as a result of the provision of the Services by the Service Provider to the Buyer under this Agreement and such shall be payable by the Buyer to the Service Provider in addition to all other charges payable hereunder.

2. General terms

2.1 Intellectual Property Rights

The Service Provider agrees to grant to the Buyer a non-exclusive, irrevocable, royalty free license to use, copy and modify any elements of the Material not specifically created for the Buyer as part of the Services. In respect of the Material specifically created for the Buyer as part of the Services, the Service Provider assigns the full title guarantee to the Buyer and any all of the copyright, other intellectual property rights and any other data or material used or subsisting in the Material whether finished or unfinished. If any third party intellectual property rights are used in the Material the Service Provider shall ensure that it has secured all necessary consents and

approvals to use such third party intellectual property rights for the Service Provider and the Buyer. For the purposes of this Clause 2.1, "Material" shall mean the materials, in whatever form, used by the Service Provider to provide the Services and the products, systems, programs or processes, in whatever form, produced by the Service Provider pursuant to this Agreement.

2.2 Warranty

- a. The Service Provider represents and warrants that:
 - i. it will perform the Services with reasonable care and skill; and
 - ii. the Services and the Materials provided by the Service Provider to the Buyer under this Agreement will not infringe or violate any intellectual property rights or other right of any third party.

2.3 Limitation of liability

- a. Subject to the Buyer's obligation to pay the Price to the Service Provider, either party's liability in contract, tort or otherwise (including negligence) arising directly out of or in connection with this Agreement or the performance or observance of its obligations under this Agreement and every applicable part of it shall be limited in aggregate to the Price.
- b. Nothing in this Clause 2.3 will serve to limit or exclude either Party's liability for death or personal injury arising from its own negligence.

2.4 Term and Termination

- a. This Agreement shall be effective on the date hereof and shall continue, unless terminated sooner in accordance with Clause 2.4(b), until the Completion Date.
- b. Either Party may terminate this Agreement upon notice in writing if:
 - i. the other is in breach of any material obligation contained in this Agreement, which is not remedied (if the same is capable of being remedied) within 30 days of written notice from the other Party so to do; or
 - ii. a voluntary arrangement is approved, a bankruptcy or an administration order is made or a receiver or administrative receiver is appointed over any of the other Party's assets or an undertaking or a resolution or petition to wind up the other Party is passed or presented (other than for the purposes of amalgamation or reconstruction) or any analogous procedure in the country of incorporation of either party or if any circumstances arise which entitle the Court or a creditor to appoint a receiver, administrative receiver or administrator or to present a winding-up petition or make a winding-up order in respect of the other Party.

- c. Any termination of this Agreement (howsoever occasioned) shall not affect any accrued rights or liabilities of either Party nor shall it affect the coming into force or the continuance in force of any provision hereof which is expressly or by implication intended to come into or continue in force on or after such termination.

2.5 Relationship of the Parties

The Parties acknowledge and agree that the Services performed by the Service Provider, its employees, agents or sub-contractors shall be as an independent contractor and that nothing in this Agreement shall be deemed to constitute a partnership, joint venture, agency relationship or otherwise between the parties.

2.6 Confidentiality

Neither Party will use, copy, adapt, alter or part with possession of any information of the other which is disclosed or otherwise comes into its possession under or in relation to this Agreement and which is of a confidential nature. This obligation will not apply to information which the recipient can prove was in its possession at the date it was received or obtained or which the recipient obtains from some other person with good legal title to it or which is in or comes into the public domain otherwise than through the default or negligence of the recipient or which is independently developed by or for the recipient.

2.7 Notices

Any notice which may be given by a Party under this Agreement shall be deemed to have been duly delivered if delivered by hand, registered post, facsimile transmission or electronic mail to the address of the other Party as specified in this Agreement or any other address notified in writing to the other Party. Subject to any applicable local law provisions to the contrary, any such communication shall be deemed to have been made to the other Party, if delivered by:

- a. Registered Post, 2 days from the date of posting;
- b. hand or by facsimile transmission, on the date of such delivery or transmission; and
- c. electronic mail, when the Party sending such communication receives confirmation of such delivery by electronic mail.

2.8 Miscellaneous

- a. The failure of either party to enforce its rights under this Agreement at any time for any period shall not be construed as a waiver of such rights.
- b. If any part, term or provision of this Agreement is held to be illegal or unenforceable neither the validity or enforceability of the remainder of this Agreement shall be affected.

- c. Neither Party shall assign or transfer all or any part of its rights under this Agreement without the consent of the other Party.
- d. This Agreement may not be amended for any other reason without the prior written agreement of both Parties.
- e. This Agreement constitutes the entire understanding between the Parties relating to the subject matter hereof unless any representation or warranty made about this Agreement was made fraudulently and, save as may be expressly referred to or referenced herein, supersedes all prior representations, writings, negotiations or understandings with respect hereto.
- f. Neither Party shall be liable for failure to perform or delay in performing any obligation under this Agreement if the failure or delay is caused by any circumstances beyond its reasonable control, including but not limited to acts of god, war, civil commotion or industrial dispute. If such delay or failure continues for at least 7 days, the Party not affected by such delay or failure shall be entitled to terminate this Agreement by notice in writing to the other.
- g. This Clause 2.8(g) and Clauses 2.3, 2.5, 2.6, 2.7 and 2.8 of this Agreement shall survive any termination or expiration.
- h. This Agreement shall be governed by the laws of the jurisdiction in which the Buyer is located (or if the Buyer is based in more than one country, the country in which its headquarters are located) (the "Territory") and the parties agree to submit disputes arising out of or in connection with this Agreement to the non-exclusive of the courts in the Territory.
- i.

2. Additional clauses

AS WITNESS the hands of the Parties hereto or their duly authorized representatives the day and year first above written.

SIGNED by)

for and on behalf of)

[the Buyer])

SIGNED by)

for and on behalf of)

[the Service Provider])

END OF SECTION III

BID SECURITY Letter

To,
The Registrar
Nalanda University, Rajgir,
Bihar 803116

NIT Ref. No:

Dear Sir,

Having examined the Bidding Documents including Addenda Nos., if any issued by Nalanda University, the receipt of which is duly acknowledged, we, the undersigned, offer to supply and deliver..... (Description of Goods and Services) in conformity with said bidding

Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

documents.

We, undertake, if our bid is accepted, to deliver the goods in accordance with the delivery and Installation schedule specified in the aforesaid bid document.

If our bid is accepted, we will submit performance bank guarantee in a sum of equivalent to 5% of the Contract Price for the due performance of the contract warranty period.

We agree to abide by this bid for a period of 180 (one hundred eighty) days after the date fixed for bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid together with your written acceptance thereof shall constitute a binding contract between us.

We confirm that stipulated BID SECURITY DECLARATION is enclosed herewith as a part of bid.

We accept all your terms and conditions stipulated in this bid document without deviations, both technical & techno-commercial.

Dated this.....Day of..... 2017.....

(Signature)

(In the capacity of)

Duly authorised to sign Bid for and on behalf of

_____ Signed

FORM- I - Bid Security Declaration Form (On Stamp Paper and Notarized)

Date: _____

To
The Registrar
Nalanda University
Rajgir, Bihar

NAME OF WORK: For the Supply, Installation, Testing & Commissioning of Audio and Video System for the Remaining Buildings (Other than the Priority Buildings) at the Permanent Campus of Nalanda University (NU), Rajgir, Bihar Under Package 5C.

Tender No: Nu/Engg/68/20-21/02

Dated 24.04.2021

Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

—
I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Security Declaration.

I/We accept that I/We may be disqualified from bidding for any central government contract or any of its PSU for a period of one year from the date of issue of suspension order if I am /We are in a breach of any obligation under the bid conditions, because I/We

a) after the opening of the tender, have withdrawn/modified/amended, my/our Bid during the period of bid validity specified in the form of Bid; or

b) having been notified of the acceptance of our Bid by the Employer during the period of bid validity (i) fail or refuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions as given in the bid.

I/We understand this Bid Security Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signature

in the capacity of _____

Name: _____

Duly authorized to sign the bid for an on behalf of **M/s** _____

Dated on _____

SECTION IV – Schedule of Requirement

Description of Work:

The successful bidder will be required to timely deliver, install and set up the classroom, conference room & meeting room equipment as per specification and bill of quantity defined in the tender document. The broad overview of work but not limited to is outlined below:

(A) Facilities

The Facilities matrix enclosed for understanding, Nalanda University reserve right to modify, change, increase or decrease as per the requirement.

NJ Area Wise facility Matrix, for AV Systems																
Sr. No.	Facility	OUTREACH & OUTREACH EXTENSION							SCHOOL				LAB-A & LAB-B			
		Camp Inn-66 seater conference room	Block C-12X1 seater meeting room/ Medical Centre Cen-14 conference room						Block E-18X4 seater classroom; Block E-50X1 seater classroom; Block E-40X2 seater classroom; Faculty Club-46X1 seater multipurpose room	Block B -50X4 seater classroom; Block D-50X2 seater classroom; Block D-60X1 seater classroom; Block E-100X1 seater classroom	Block B-30X2 seater classroom; Block D-30X2 seater classroom; Block F-42X1 seater classroom	Block B-300 seater class room; Block F-300 seater classroom;	BLOCK-A			
																11-Feb-21
1	Video Conferencing System	Y (speaker at Podium)							Y			Y	Y	Y		
2	Recording of VC Session	Y										Y	Y			
3	Lecture Recording for Classrooms (For Lecturer/Presenter and Projection Screen/Display only)								Y	Y			Y			
4	Live Streaming - Two way Communication (Faculty & Students both side)	Y - 2-way (from podium location)	N	N	N	N	N	N	Y (1-way)	Y (1-way)		N	N	Y (1-way)	N	N
5	Smart Lesson Capture & Faculty Development/ Reflection System for 40 seater classroom								Y							
5	Sleek Digital Podium	Y							Y	Y		Y	Y			
6	Video Projection System & Motorized Screen	Y	N	Y	N	Y	N	N	Y	Y		N	Y	Y	Y	N
a	DLP Laser, Ceiling projector	Y								Y		Y	Y			
b	Ultra Short Throw Projector - 3LCD, Lamp based		Y		Y				Y						Y	
7	19"/43"/55"/65"/75" Professional 4K LED Display	Y	Y	N	N	N	Y	Y	N	N		N	N	Y	N	Y
a	Qty. of 4K LED Display		4 (65")													
b	Qty. of Full HD LED Display	4 (19")					1 (55")	1 (55") in				2 (65") + 2	2 (65")			1 (65") in each room
8	AV System Control Panel	Y	Y	Y	Y	Y	N	N	Y	Y		Y	Y	Y	Y	N
a	Wired Button Panel								Y							
b	Wireless Device	Y	Y	Y			Y			Y		Y	Y	Y	Y	
9	Presentation system	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
a	Wireless Presentation	Y	Y	Y					Y	Y		Y	Y	Y		
b	Wired Presentation	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
c	# of Presentation Points	1	2	1	1	1	1	1	1	1		1	2	1	1	1
d	location	podium	table	table	table	table	table	table	faculty-desk/podium	podium		table	table	podium	table	table
10	Document Camera	Y	Y	Y	Y	Y	N	N	Y	Y		Y	Y	Y	Y	N
a	Ceiling Mount															
b	Table Top	Y	Y	Y	Y	Y			Y	Y		Y	Y	Y	Y	
11	Interactive touch panel (Annotation)	Y	Y	Y	Y	N	N	N	Y	Y		Y	Y	Y	N	N
12	Digital Audio Conferencing System (Chairman/Delegate System)	N	Y	Y	N	N	N	N	N	N		N	Y	N	N	N
13	Professional Sound (FOR/ Columns, with or w/o Sub woofers)	Y	Y	N	N	N	N	N	N	Y		N	Y	Y	N	N
a	FOR													Y		
b	Column Speakers	Y	Y							Y		Y	Y			
c	Delay Fill															
d	Subwoofers													Y		
14	Sound Reinforcement System (ceiling/ wall based speakers)	N	N	N	N	Y	N	N	Y	N		N	N	N	Y	N
a	Ceiling															
b	Wall					Y			Y						Y	
15	Microphones/ Audio Inputs	Y	Y	N	N	N	N	N	Y	Y		N	Y	Y	N	N
a	Gooseneck (1 at podium & 4 at dias)								Y (podium needs to be provided)	Y (podium needs to be provided)				Y (podium needs to be provided)		
b	Wireless - Neckworn/Headworn/Lapel	Y	Y						Y	Y		Y	Y			
c	Wireless - Handheld	Y (4 Nos.)								Y (4 Nos.)				Y (6 Nos.)		
	Y = Yes considered															
	N = Not considered															

(B) Requirement of technical Staff:

The bidder shall deploy sufficient number of technical and administrative employees for smooth execution of the Work. However Minimum Technical Staff to be deployed at site at all times during the execution of the work will be as per following table. The bidder shall submit a list of employees stating clearly the responsibility to be assigned to each of such employees. Further, the bidder shall have the capability and resources to arrange at least 15 $\pm 10\%$ numbers of skilled and 20 $\pm 10\%$ numbers of unskilled laborers per day continuously for various stages of the Work. The bidder shall have to demonstrate the capability to arrange such workers and additional numbers as per the requirement assessed by the Engineer-in-Charge for timely completion of various stages of the Work. The capability as claimed by the bidder shall be supported by the past performance and an undertaking.

Technical Staff	Requirement of Technical staff		Minimum experience of Execution work (Years)
	Qualification	Number	
Electrical/ Electronics/ IT Engineers	Project Manager	1	10
	Graduate Engineer		
	Project Engineer	1	5
	Graduate Engineer		
	Site Engineers		
	Graduate Engineer	2	2
	Or		
	Diploma Engineer	2	5
Sound Engineer	Site Engineers	1	2
	Graduate Engineer		
	Or		
	Diploma Engineer	1	5

In case of any discrepancies, the CPWD guidelines will be followed.

TECHNICAL SPECIFICATIONS FOR AUDIO VISUAL SYSTEM

1.1. BOQ ITEM NO. 2

3 I/P SWITCHER PLUS TRANSMITTER WITH AUDIO EMBEDDING

3 I/P Switcher cum Transmitter with Audio embedding; supporting video output on a cable length up to 330 ft. (100 meters) on CAT6; Input: 2 x HDMI, 1 x VGA + Audio 3.5mm; Output: 1 x HDBaseT, video output shall be on a single CAT6 shielded twisted pair cable; Auto switching between inputs; the device shall be HDCP compliant and with EDID support.

- Input signals requirements : Minimum 2 x HDMI, 1 x VGA on 15-pin D + 1 x unbalanced analog audio on 3.5mm connector
- Output signals requirements : 1 x RJ-45 connector for HDBaseT output to be transmitted over CAT6 based shielded twisted pairs cable
- Video transmission: shall support video transmission over CAT6 up to 100 meters (330 feet), 1080p, 4K video resolution support.
- Other ports: minimum 1 x RJ-45 based Ethernet port supporting TCP/IP at minimum 100Mbps, 1 x RS232 port for device control/data injection over HDBaseT, 1 x USB port for service control
- Video standards supported: the unit shall be EDID & HDCP compliant

1.2. BOQ ITEM NO. 3

HDMI TWISTED PAIR RECEIVER

HDMI Twisted Pair Receiver, for receiving HDMI, RS232 & IR control up to 230 feet (70 meters) over a shielded CAT6 cable; Input: One CAT6 twisted pair input on RJ-45; Outputs: One HDMI; the device shall be HDCP compliant and with EDID support.

- The device shall receive HDMI plus control signal up to 230 feet (70 meters) over a shielded twisted pair CAT6 cable
- Input: 1 x twisted pair on RJ-45
- Outputs: 1 x HDMI, 1080p, 4K video resolution support.
- Shall be able to accept additional RS232 and IR signals over CAT6 cable
- Video standards supported: the unit shall be EDID & HDCP compliant

1.3. BOQ ITEM NO. 4

HDMI TWISTED PAIR EXTENDER TRANSMITTER

HDMI Twisted Pair Extender, Transmits HDMI and control signal up to 230 feet (70 meters) over a shielded CAT6 cable, Output: One CAT6 twisted pair output on RJ-45, Inputs: One HDMI, Supports EDID and HDCP transmission.

- The device shall transmit HDMI plus control signal up to 230 feet (70 meters) over a shielded twisted pair CAT6 cable
- Inputs: 1 x HDMI
- Output: 1 x twisted pair output on RJ-45, 1080p, 4K video resolution support.
- The device shall be capable of transmitting RS232 and IR signals over CAT6 cable
- Video standards supported: the unit shall be EDID & HDCP compliant

1.4. BOQ ITEM NO. 5

HDMI ACTIVE WALL PLATE

HDMI active wall plate, 1 x HDMI input & 1 x CAT6 output supporting up to 230 ft. (70 meters), device should support HDCP and EDID transmission.

- The device shall transmit HDMI plus control signal up to 70 meters over a twisted pair shielded CAT6 cable
- Inputs: 1 x HDMI
- Output: 1 x Twisted pair output on RJ-45
- The device shall be capable of transmitting RS232 and IR signals over CAT6 cable
- Video standards supported: the unit shall be EDID & HDCP compliant

1.5. BOQ ITEM NO. 7

WIRELESS PRESENTOR SYSTEM

Wireless Presentation Unit of HD content using laptops, tablets, and smartphones. Compatible with Windows OS X, Apple iOS, and Android, Supports 4K display resolutions; shall provide minimum 1 x HDMI output

- **Wireless connection for up to 24 devices**
- **Should support Web Browsers such as Internet Explorer, Mozilla and Chrome**
- **Should support third party app such as Microsoft Office®, Skype®, goto meeting®, Lync®, and webex®.**
- **Simultaneous content display:- 4 user or higher**
- **Supported Operating System:- Windows / Android / Mac**
- **Should have minimum 1 x HDMI output**
- **Should have Audio output**
- **Should have minimum 1 x USB port**

1.6. BOQ ITEM NO. 8

HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 3 x video and 1 x audio

HDMI scalar cum matrix switcher having minimum Eight inputs - 4 x HDMI and 2 x CAT6, 2 DVI-U (HDMI, DVI, VGA supported) and minimum two video outputs

- 2 x HDMI with parallel 2 x CAT6, 1 x audio output. It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant.

- Input signals requirements: minimum 4 x HDMI plus minimum 2 x CAT6 & 2 DVI-U (HDMI, DVI, VGA supported) inputs for accepting video over 330 feet (100 meters) over a shielded twisted pair CAT6 cable.
- Output signals requirements: minimum 2 x HDMI with parallel 2 x CAT6 output for transmitting video over 330 feet (100 meters) over a shielded twisted pair CAT6 cable
- Other ports: minimum 1 x RJ-45 based Fast Ethernet port supporting TCP/IP at 10/100Mbps, 1 x RS232 port for device control, 1 RS232 port for data injection over HDBaseT.
- Video standards supported: the unit shall be EDID & HDCP compliant
- The device shall support automatic input selection via last detected input source
- Resolutions supported – minimum up to 4K

1.7. BOQ ITEM NO. 9

HDMI SCALAR PLUS MATRIX SWITCHER – Minimum 8 video inputs, outputs - minimum 2 x video and 1 x audio

HDMI scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+Audio, 2 x DisplayPort and minimum 2 x HDMI outputs; It shall support resolutions upto 4K. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant.

- Input signals requirements: minimum 4 x HDMI plus minimum 2 x VGA+Audio, 2 Display Port.
- Output signals requirements: minimum 1 x HDMI with parallel Display Port output, 1 HDMI with parallel VGA output.
- Other ports: minimum 1 x RJ-45 based Fast Ethernet port supporting TCP/IP at 10/100Mbps, 1 x RS232 port for device control, Data injection over HDBaseT.
- Video standards supported: the unit shall be EDID & HDCP compliant
- The device shall support automatic input selection via last detected input source
- Resolutions supported – minimum up to 4K.

1.8. BOQ ITEM NO. 10

1 x 8 HDMI DISTRIBUTION AMPLIFIER

1:8 Distribution Amplifier having 1 x HDMI input and minimum 8 x HDMI outputs, shall be EDID and HDCP compliant.

- Input signals requirements: minimum 1 x HDMI
- Output signals requirements: minimum 8 x HDMI
- Video standards supported: the unit shall be EDID & HDCP compliant
- Resolutions supported – minimum up to 4K.

1.9. BOQ ITEM NO. 11

1 x 4 HDMI DISTRIBUTION AMPLIFIER

1:4 Distribution Amplifier having 1 x HDMI input and minimum 4 x HDMI outputs, shall be EDID and HDCP compliant.

- Input signals requirements: minimum 1 x HDMI
- Output signals requirements: minimum 4 x HDMI
- Video standards supported: the unit shall be EDID & HDCP compliant
- Resolutions supported – minimum up to 4K.

1.10. BOQ ITEM No. 12

CONTROL PROCESSOR

Control Processor, with minimum ports as follows: 4 x bidirectional RS-232 serial ports, with hardware and software handshaking, 4 x IR/Serial ports, 4 x

Digital I/O ports, 4 x relays for controlling room functions, 1 x RJ-45 Ethernet monitoring and control, Supports 10/100/1000Base-T.

Control Processor shall have:

- At least four bidirectional RS-232 serial ports.
- At least four IR/Serial ports for one-way control of external devices.
- At least four Digital I/O ports.
- At least four relays for controlling room functions.
- At least Ethernet port supporting 10/100/1000Mbps for monitoring and control.
- The device shall be rack mountable.

1.11. BOQ ITEM NO. 13

WIRED CONTROL PANEL

podium mountable, minimum 12-Button wired control panel for controlling various devices; it shall have - one volume control knob; minimum 3 x RS 232, 4 x Relays and 2 x IR ports, 2 I/O, 1 x LAN, to control the devices.

A wired button control panel shall be provided for control of devices - minimum 12 buttons or more, with required no. of RS232, IR and RJ-45 based Ethernet IP Ports to control up to 1 projector, 1 screens, 1 - video switcher, 1 annotation processor, 1 video recording device, 1 – 3 Input transmitter + receiver for (input switching) and audio system DSP as per the requirements of individual room.

However, following minimum requirement of ports shall be met:

- Should have minimum 1 x Ethernet on RJ45 for monitoring and control over TCP/IP protocols, supporting minimum Fast Ethernet (10/100Mbps) speeds
- Should have minimum 3 x bi-directional RS232 ports for control
- Should have minimum 2 x IR ports (source/emitter ports)
- Should have minimum 4 x relay ports
- Should have minimum 2 x I/O ports
- Should have minimum 1 x IR sensor for reading IR commands from devices

- Should have minimum 12 x programmable buttons with backlighting/LED indication for various AV control functions assignments, including input selections
- Should have minimum 1 x rotary dial/knob for volume control

1.12. BOQ ITEM NO. 15 & 16

SPECIFICATIONS FOR VIDEO MANAGEMENT PLATFORM

OVERVIEW

The video streaming platform should provide a complete solution to upload, manage, publish and measure video content. It should be possible to broadcast live events, upload existing videos and organize & distribute videos using the video streaming platform. Devices such as iPhones, iPads, Android phones, Android tablets, Windows tablets and all leading browsers and operating systems shall be recognized and supported.

ESSENTIAL COMPONENTS OF VIDEO MANAGEMENT PLATFORM

a. MEDIA/VIDEO LIBRARY

The provided solution shall include online video library so as to sort, manage and organize the entire media library. It shall be possible to upload all popular formats of video, tag them, categorize them and generate a thumbnail automatically. It shall be possible to specify an expiry date so as to automatically make the video unavailable beyond a certain time frame.

b. LIVE VIDEO STREAMING

The video platform shall provide streaming facility. It shall be capable of delivering high-quality live HD video streaming broadcasts to any device or browser besides allowing sharing of desktop presentation.

c. VIDEO PLAYER

The video management platform shall provide intelligent video players that will automatically detect a viewing device and select the correct video type matching that viewing device. The video player shall have user-friendly features such as playlist viewing, in-player chatting or access restrictions when required. It shall be possible to provide a customized or proprietary appearance to the user interface matching the university requirements of intranet access and website. The video player shall support standard features such as volume control, full-screen playback, e-mail sharing and auto-start playback.

d. MOBILE DEVICE SUPPORT

Via the video management platform, it shall be possible to play any video on any device. Using features such as intelligent video encoding and intelligent video player, it shall allow an easy, simplified access of videos for mobile users. Whether the users are accessing the videos on a computer, at home or on the go using a mobile device(s) such as mobile phones, tablets and other smart devices, the videos shall be appropriately formatted for viewing on their respective devices.

e. INTELLIGENT TRANSCODING

The video streaming platform shall provide intelligent transcoding thereby automatically preparing the videos for all devices. The video streaming platform should be able to automatically determine the appropriate translation into multiple types of videos for supporting a variety of viewing devices.

VIDEO MANAGEMENT PLATFORM FEATURES

- The video platform shall allow multi-platform delivery; it shall support viewers irrespective of whatever device they may be using, e.g., desktops, smartphones/mobiles, laptops or tablets.
- The video management platform shall provide HD format viewing and adaptive streaming; it shall provide dynamic streaming capabilities to provide high quality videos depending upon the available bandwidth at that time.
- The video management platform shall provide live broadcasting; it shall be possible to broadcast live any events such as lectures, seminars, training sessions, webinars any other events such as sports or cultural which can be broadcast live or may be offered as on-demand after the live broadcast.
- The video management platform shall provide syndication capabilities for both controlled and viral syndication so as to help reach the possible broadest audience.
- The video management platform shall be able to integrate with popular global content distribution networks allowing for access to vast number of viewers.

- The video management platform shall support various media formats such as H.264, Flash, HTML5, QuickTime, Silverlight, and Windows Media based content delivery.
- The video management platform shall provide facilities for media publishing; the media player framework shall be able allow the users to create dynamic media players and media portals.
- The video management platform shall provide intelligent video search facilities using intelligent techniques such as semantic search to help identify relevant videos.
- The video management platform shall adequate mechanism in place for providing video security & encryption using platforms and protocols such as - AES for live video, https, ftps and sftp.
- The video management platform shall provide intelligent transcoding capabilities for the various target viewing devices such as by trans-coding or trans-rating video between protocols for both live and file based processing.

1.13. BOQ ITEM NO. 18

PTZ Camera

Full HD/1080p, PTZ Camera for presenter capturing having minimum 20 x optical zoom, minimum 60 presets and minimum output- 1 x HDMI or HD-SDI or OEM specific output, 1 x RS- 232/422 for control. However, if supported output format is other than HDMI, same shall be converted to HDMI using suitable interface unit or cable convertor.

1.14. BOQ ITEM NO. 18

CEILING MOUNT DOCUMENT CAMERA

Full HD/1080p, ceiling mounted Document Camera with minimum 14 x optical zoom — 1 x HDMI or DVI output and 1 x LAN port. DVi models shall be acceptable with external DVi to HDMI convertor interface unit or cable.

- Type: Full HD/1080p Document Camera, Ceiling mounting
- Output Resolution: XGA (1024 x 768), SXGA (1280 x 1024), UXGA (1600 x 1200), WXGA (1280 x 800), HD720p and Full HD 1080p
- Frame Rate: Up to 30 fps or better with all resolutions
- Zoom Capacity: Minimum 14 x optical zoom or better

- Output Interfaces: 1 x HDMI preferred or 1 x DVI with DVI to HDMI cable adaptor inclusive
- Protocols: Ethernet or RS-232 as either RS-232 port on 9-pin D-Sub or via RJ-45 connector
- Power Supply: POE preferred or else via OEM's adaptor
- Type of mounting: ceiling mounted

1.15. BOQ ITEM NO. 19

TABLE TOP MOUNTABLE DOCUMENT CAMERA

Full HD/1080p, Table Top Mountable Document Camera with minimum 14 x optical zoom — 1 x HDMI or DVI output and 1 x LAN port. DVi models shall be acceptable with external DVi to HDMI convertor interface unit or cable.

- Type: Full HD/1080p Document Camera, Ceiling mounting
- Output Resolution: XGA (1024 x 768), SXGA (1280 x 1024), UXGA (1600 x 1200), WXGA (1280 x 800), HD720p and Full HD 1080p
- Frame Rate: Up to 30 fps or better with all resolutions
- Zoom Capacity: Minimum 14 x optical zoom or better
- Output Interfaces : 1 x HDMI preferred or 1 x DVI with DVI to HDMI cable adaptor inclusive
- Protocols: Ethernet or RS-232 as either RS-232 port on 9-pin D-Sub or via RJ-45 connector
- Power Supply: POE preferred or else via OEM's adaptor
- Type of mounting: table top, movable.

1.16. BOQ ITEM NO. 20

The proposed system must support PAL with a PTZ camera. The codec must be based on ITU standards. The VC End Point should be a codec based hardware. No software based solution is accepted here. All components of the VC system like Codec, Camera, Microphone and Remote Control and Touch Panel should be from the same OEM.

Sr. No.	Description	Specification Parameter
1	Package	Full HD 1080p60 camera, codec, Microphone Array, cables, and remote control
2	Video Standards and Resolutions	It should support H.323, SIP standards for communications.
		It should support H.261, H.263, H.264 AVC/ SVC, H.264

		High Profile
		It should support 1080p 60 fps, 1080p 30 fps, 720p 60 fps and 720p 30fps
3	Content Standards and Resolutions	It should support content sharing using standard based H.239 & BFCP.It should also support audio from PC used for content sharing.
		It should transmit both people and content both simultaneously to the far end location at 1080p 30fps
4	Audio Standards and Features	It should support G.711, G.728, G.729A, G.722, G.722.1, AAC-LD or better
		It should support 20kHz or better bandwidth with crystal clear audio and stereo sound.
		Automatic Gain Control and Automatic Noise Suppression
		Keyboard noise reduction and instant adaptation echo cancellation
5	Video and Audio Inputs	1 x HDCI\HDMI input for connecting main HD camera
		1 x HDMI & 1 VGA input for connecting PC/Laptop to share HD content
		1 x Microphone Input or more(Support for minimum 4 mics), bidder need to supply 1 mic on day 1
		Proposed mic should be omni directional with 360 degree coverage & should have a mute\unmute button with LED indication
		1 x 3.5mm stereo line-in
6	Video and Audio Outputs	2 x HDMI output for connecting main monitor & second monitor.
		1 x 3.5 mm stereo line-out
7	Other Interfaces	1 x 10/100/1000 LAN port
		2 x USB for software upgrade and connecting external devices
		1 x RS-232 mini-DIN 8-pin or equivalent
8	Camera	It should support 1080p60fps and 10x optical zoom with 1/2.33" CMOS Sensor or better
		It should support PAN Range of +/-100°, and Tilt of +20°/-30° & Minimum 10 camera presets

		The VC System should be a dual camera/two camera system with both cameras of minimum 10X Optical Zoom to provide automatic voice and speaker framing of the active speaker in the room with a range up to 32 feet. It should be possible to send both active speaker in zoomed mode and room view in PIP to far side location during a VC call in a single stream. It should be possible to cascade two such camera system to cover larger room.
9	Network Features	H.323 and SIP bandwidth up to 6 Mbps
		IPv4 and IPv6 support from day one
		Auto Gatekeeper Discovery
		IP Precedence, QoS
		H.323 based Packet Lost Recovery
10	Multisite Feature	It should support inbuilt multiparty feature with support for 1+5 sites at 720p with all sites encryption enabled
11	Security	Media Encryption (H.323, SIP): AES-128, AES-256, SSL 3.0
		Authenticated access to admin menus, web interface and telnet API
		Local account password policy configuration
12	Other Standards	H224/H.281, H.323 Annex Q, H.225, H.245, H.241, H.239, H.243, H.460
13	Touch Panel	It should be minimum 10 inch touch screen with 1280x800 resolution & PoE option. It should provide access to call controls and administrative menus

1.17. BOQ ITEM NO. 20A

The proposed system must be an all-in-one video bar consisting of Integrated - Camera, Codec, Speaker, Microphone and Wireless Remote Control/Touch Control Panel. The system must be based on ITU standards & hardware based. No software based solution will be accepted. It should native 3rd party apps including Zoom, Microsoft Teams, Ring Central, GotoRoom and Star Leaf

Sr. No.	Description	Specification Parameter
1	Package	It should be All-In-One Video Bar (with Integrated Microphones, Speakers , 4K Camera with Privacy Cover/Shutter) and Wireless Remote Control/Touch Control

		Panel.
2	Video Standards and Resolutions	It should support H.323 & SIP standards for communications.
		It should support interoperability and bandwidth saving using video compression H.264 AVC, H.264 High Profile, H.265
		It should support 4K 30 fps, 1080p 60 fps, 1080p 30 fps, 720p 60 fps, 720p 30 fps.
3	Content Standards and Resolutions	It should support both wired and wireless content sharing using standard based H.239 and BFCP. It should also support audio from PC used for content sharing.
		It should transmit both video and content to the far end location at 4K
		It should support wireless content sharing using Airplay and Miracast.
		It should support Content Annotation and WhiteBoarding capability when connected to Touch Display.
4	Audio Standards and Features	It should support G.711, G.728, G.729A, G.722, G.722.1, G.719, AAC-LD or better
		It should support 20 kHz or better bandwidth with crystal clear audio and stereo sound.
		Keyboard Noise Reduction and NoiseBlock
5	Video and Audio Inputs	1 x HDMI input to share 4K & Full HD content from PC/Laptop/Document camera.
6	Video and Audio Outputs	2 x HDMI output for connecting primary and secondary 4K(UHD)/Full HD displays.
		2 x USB for two touch display support
7	Other Interfaces	1 x 10/100/1000 Ethernet port
		1 x USB for software upgrade
		Bluetooth 5.0 and WiFi 802.11a/b/g/n/ac (MIMO)
8	Camera	Integrated UHD 2160p (4K) capture resolution
		Minimum 5x automatic digital zoom and 120° FOV
		The camera should support automatic speaker framing and people framing.
		The Camera should have privacy cover/shutter.

9	Microphone and Speaker	Stereo Microphone and Stereo Speaker
		Should support at least one external tabletop microphone from same OEM
10	USB Device Mode	Single USB port functionality to use the system as an external camera, microphone and speaker when connected to a Laptop/PC.
11	Network Features	H.323 and SIP bandwidth supporting 64 kbps to 6 Mbps or more.
		Must support IPv4 and IPv6 from day one on both H.323 and SIP.
		Auto Gatekeeper Discovery, Lost Packet Recovery (LPR) technology, IP Precedence and DiffServ, Configurable MTU size
12	Security	Media Encryption (H.323, SIP): AES-128, AES-256
		Authenticated access to admin menus, web interface and telnet API
		Local account password policy configuration
		Global Directory/Centralized Directory/LDAP support
13	Other Standards/features	H.460.18, H.460.19, SSL, TLS
14	Touch Control	Min 8" display screen & WXGA resolution with call control option

1.18. BOQ ITEM NO. 22

Sleek Digital Podium built in Metallic Frame and Wooden Top with built-in 22" Interactive Panel (Electromagnetic Technology) with Motorized Tilting, Motorized Height Adjustment of the Podium as per user height, Built-in Connectivity for HDMI, USB, Power for External Laptop at the Top, Space to place CPU.

Podium touch monitor shall be compatible with Annotator hardware device.

1.19. BOQ ITEM NO. 23

Desktop PC with Intel Core i7 or higher with min. 8GB of RAM DDR4, 1TB SATA II hard drive, 10/100/1000 Mbps Ethernet Network Interface Card, including additional 2-port Matrox or NVidia Graphics Card with minimum 1GB dedicated

Graphics RAM for providing HDMI output to switcher for projection and another HDMI output for connecting 21" LED PC monitor for local display supporting minimum resolution upto 1920x1200 and inclusive of 21" HDMI LED monitor with mounting accessories and customization for flush mounting in furniture.

It shall be supplied with Licensed Operating System Windows 10 or above, Licensed Microsoft Office latest version, USB wireless Keyboard, USB wireless Mouse, minimum 1 x USB2.0 spare port

1.20. BOQ ITEM NO. 24

ULTRA SHORT THROW PROJECTOR

Ultra Short Throw Projector -1 Chip DLP laser minimum 5000 Lumens, 16:10 Aspect Ratio, WUXGA display Resolution, Minimum Ports – HDMI/ HDBaseT, USB and RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required.

Inclusive of standard or optional lens as per OEM to project on a 120” diagonal screen.

- Type of projection technology: DLP laser phosphor
- Should support wall installation, and shall be supplied with all requisite mounting accessories such as brackets, rods and cables
- Lens specification: 0.25 UST .
- Brightness: Minimum 5000 lumens or better
- Resolution: 1200 or better with 16:10 Aspect ratio
- Supported Interfaces: HDMI/ HDBaseT, .

1.21. BOQ ITEM NO. 25

6000 LUMENS PROJECTOR

Laser type Projector - 1-Chip DLP Technology, minimum 6,000 Lumens, 16:10 Aspect Ratio, Resolution : Full HD 1920 x 1200, contrast ratio 500000:1, Minimum Ports - HDMI

and HDBaseT, RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required.

Inclusive of standard or optional lens as per OEM to project on a 150" diagonal (3320mm W x 1868mm H) size screen from a throw distance of not more than 4000mm from the screen.

- Type of projection technology: 1-chip DLP, Laser phosphor based
- Contrast ratio" 500000:1
- Should support ceiling suspended installation, and shall be supplied with all requisite mounting accessories such as brackets, rods and cables
- Lens specification: It should permit projection on an approximately 150" diagonal screen from a throw distance of not more than 4000mm from the screen. Lens may be a standard or optional accessory; however, cost for the same shall be inclusive
- For providing projection on a High Gain Material Tubular Motorized Projection screen (Tab tensioned with short throw projectors) of size approximately 150" diagonal (3320mm W x 1868mm H, 3810mm diagonal approx.) having aspect ratio of 16:9
- Brightness : Minimum 6000 lumens or better
- Resolution : WUXGA (1920 x 1200) or better with 16:10 Aspect ratio
- Supported Interface : 1 x HDMI, 1 x HDBaseT (RJ-45), 1 x VGA on 15 pin, 1 x 3.5 mm audio, 1 x RS232 or 1 x USB for control.

1.22. **BOQ ITEM NO. 25A**

Laser type Projector - 1-Chip DLP Technology, minimum 17,000 Lumens,16:10 Aspect Ratio, Resolution: WUXGA 1920x1200, Minimum Ports - 1 x HDMI, 1 x HD BaseT (RJ-45) 1 x USB or 1 x RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required. Auto keystone correction: Yes; Quick corner: Yes; Contrast ratio: 500000:1 or better

Inclusive of standard or optional lens as per OEM to project on a 226" diagonal size screen.

- Type of projection technology: 1-chip DLP, Laser based
- Contrast ratio: 500000:1
- Should support ceiling suspended installation, and shall be supplied with all requisite mounting accessories such as brackets, rods and cables
- Lens specification: It should permit projection on an approximately 226" diagonal screen.
- For providing projection on a High Gain Material Tubular Motorized Projection screen of size approximately 226" diagonal having aspect ratio of 16:9
- Brightness : Minimum 17000 lumens or better
- Resolution : WUXGA (1920 x 1200) or better with 16:9 Aspect ratio
- Supported Interface : 1 x HDMI, 1 x HDBaseT (RJ-45) ,1 x USB or 1 x RS232 for control.

1.23. BOQ ITEM NO. 33

Gooseneck Microphone

Gooseneck Microphone consisting of - 1 x Gooseneck Microphone with base and ON/OFF switch; Min. Frequency Response - 80Hz - 16 KHz, Polar Pattern : Cardioid; Transducer : Condenser type; Max SPL: 130 dB SPL ; with 3 pin XLR connectivity, complete with Foam Windscreen and standard accessories.

- Frequency response: 80Hz to 16 KHz
- Transducer Type: Condenser
- Polar pattern: Cardioid
- Dynamic range : >105dB or better
- Max SPL: >130dB or better

1.24. BOQ ITEM NO. 34

UHF Wireless Lapel Microphone

UHF Wireless Lapel microphone System with body-pack transmitter and Cardioid Condenser Lavalier microphone , No. of Channel - 40 channels per band ,UHF tuning bandwidth : 60 MHz, Minimum Frequency Step : 25 kHz, Receiving System - True Diversity, Image Rejection 60 dB nominal, RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Frequency Response : 35 Hz to 15,500 Hz ,Dynamic Range 115 dB or higher (A-weighted), typical ,switch function : Mute/unmute & On/OFF, RF Power Output High: 30 mW, Low: 10 mW (switchable), Antenna Power 12 V DC, 160 mA (combined), Maximum Output Level XLR, balanced : +14 dBV 6.3 mm (1/4"), unbalanced : +8 dBV, Antenna Input BNC-type 50 ohms, Input Connections screw-down 4-pin connector, operating range of 100m or better, complete with all cables and standard accessories.

- Diversity: True diversity or better
- Tuning Bandwidth 60MHz or more
- Channels : minimum 40 Channels per band
- Frequency response: 35 Hz to 15 KHz
- Radiated Transmitter Power: High: 30mW; Low: 10 mW (switchable)
- Transducer Type: Condenser
- Polar pattern: Cardioid
- Dynamic Range: Dynamic Range 115 dB or higher

1.25. BOQ ITEM NO. 35

UHF Wireless Head-worn Microphone

UHF Wireless Lapel microphone System with body-pack transmitter and Omnidirectional Condenser Headworn Microphone , No. of Channel - 40

Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

channels per band ,UHF tuning bandwidth : 60 MHz, Minimum Frequency Step : 25 kHz, Receiving System - True Diversity, Image Rejection 60 dB nominal, RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Frequency Response : 35 Hz to 15,500 Hz ,Dynamic Range 115 dB or higher (A-weighted), typical ,switch function : Mute/unmute & On/OFF, RF Power Output High: 30 mW, Low: 10 mW (switchable), Antenna Power 12 V DC, 160 mA (combined), Maximum Output Level XLR, balanced : +14 dBV 6.3 mm (1/4"), unbalanced : +8 dBV, Antenna Input BNC-type 50 ohms, Input Connections screw-down 4-pin connector, operating range of 100m or better, complete with all cables and standard accessories.

- Diversity: True diversity or better
- Tuning Bandwidth 60MHz or more
- Channels : Minimum 40 Channels per band
- Frequency response: 35 Hz to 15 KHz
- Radiated Transmitter Power: High: 30mW; Low: 10 mW (switchable)
- Transducer Type: Condenser
- Polar pattern: Omnidirectional
- Dynamic Range: Dynamic Range 115 dB or higher
-

1.26. BOQ ITEM NO. 36

UHF Wireless Handheld Microphone

UHF Wireless Handheld Microphone with handheld transmitter with cardioid dynamic microphone capsule, No. of Channel - 40 channels per band,UHF tuning bandwidth : 60 MHz, Minimum Frequency Step : 25 kHz , Receiving System True Diversity, Mute/unmute & On/OFF Switch, Frequency Response : 30 Hz to 16,700 Hz, Unique multifunction button to switch to a backup frequency , RF Sensitivity 20 dBuV at 60 dBA S/N ratio (50 ohms termination) , Antenna Power 12 V DC 160 mA (combined), Modulation : FM, Maximum Output Level XLR, balanced: +14 dBV 6.3 mm (1/4"), unbalanced: +8 dBV , Antenna Input BNC-type, 50 ohms, Transmitter RF Power Output High: 30 mW, Low: 10 mW (switchable), at 50 ohms, operating range of 100m or better,complete with all cables and standard accessories.

- Diversity: True diversity or better
- Tuning Bandwidth 60MHz or more
- Channels : Minimum 40 Channels per band
- Frequency response: 30 Hz to 16 KHz
- Radiated Transmitter Power: High: 30mW; Low: 10 mW (switchable)
- Transducer Type: Dynamic
- Polar pattern: Cardioid
- Dynamic Range: Dynamic Range 115 dB or higher

1.27. BOQ ITEM NO. 44

10 x 6 AUDIO DSP (with AEC feature)

Audio DSP with DANTE with min 10 No's Mic/Line Input , 6 line level outputs, Support 24 channels of AEC processing, Built in 64 x 64 DANTE channel, dual-redundant DANTE/AES67 audio transport, USB Audio Interface 24Bit, 48Khz, Frequency Response: 20Hz to 20KHz, Dynamic range: > 105 dB, Ethernet Port, RS232 connector for interfacing with 3rd party control systems, 6 No's or better GPIO, Embedded media engine for audio playback and recording etc complete with accessories

- No. of Inputs Channels: should have minimum 10 mic/line inputs
- Audio Input DC Phantom Power: should have +48 VDC
- Audio Output Interface: should have minimum 6 balanced/unbalanced outputs
- 24 channels of Acoustic echo cancellation (AEC) shall be supported on single DSP.
- Dante channel of 64x64 shall be supported
- It shall have USB audio interface port
- Control Interface : Minimum 1 x RS232 for third party control, 1 x RJ-45 based Ethernet port supporting TCP/IP for configuration. 6 x GPIO ports

- Gain Range : 0 to +66 dB with step 6 dB
- Frequency Response : should be between 20 Hz to 20 kHz
- THD + Noise : should have <0.005%, 20 Hz to 20 kHz
- Input Impedance : should be minimum 10K ohm or better
- Output Impedance : should be 200 Ohms or better
- Dynamic range : should have >105 dB, 20 Hz to 20 kHz
- Mounting Type : should be rack mountable

1.28. BOQ ITEM NO.45

8 x 3 AUDIO DSP

8x3 DSP - Digital Processors with 4 balanced mic inputs, 2 balanced Mic/Line inputs and 1 stereo unbalanced input; 1 stereo and 2 mono outputs; 2-channel USB audio interface, Full digital processing on inputs and outputs; Dynamic Range 110 dB or higher, Onboard 6 nos. acoustic echo canceler (AEC) processing ; Front panel direct operation and Web Remote functionality; LAN Port for third-party control

- No. of Inputs Channels: should have minimum 4 mic inputs, 2 Mic/Line Inputs and 1 x Stereo input
- Audio Input DC Phantom Power: should have +48 VDC
- Audio Output Interface: should have minimum 1 Stereo and 2 mono outputs
- Control Interface: Minimum 1 x RJ-45 based Ethernet port , 1 x USB Interface
- Maximum Gain : 64 dB
- Frequency response : should be between 20 Hz to 20 kHz
- THD + Noise : should have <0.03%, 20 Hz to 20 kHz
- Input Impedance : should be minimum 10K ohm or better

- Output Impedance : should be 150 Ohms or better
- Dynamic range : should have >110 dB
- Mounting Type : should be rack mountable

1.29. BOQ ITEM NO. 46

30W Ceiling Mount Speaker

full-range or 2-way minimum 4" ceiling mount loudspeaker, 4/8 ohms or 70V/100V operation, Frequency Response - 80 Hz - 19 kHz (-10dB), Power handling@70/100V : 30W or better, Sensitivity : SPL/W@1 Mtr - 86 db or better, Max SPL@1 Mtr - 100dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories.

- Frequency range (-10dB) : should be between 80 Hz to 19 kHz or better
- Power Rating : minimum 30 W or better
- Maximum Peak SPL @ 1m : 100dB or better
- Drivers: Full range driver or 2-way - minimum 1 x 4" LF Driver & minimum 1 x 0.75" HF Driver
- Coverage (conical): 100 degrees or higher
- Sensitivity 1W @1m : 86dB or better
- Impedance : 4/8 Ohms or 70/100V tapping operation

1.30. BOQ ITEM NO. 47

30W Surface/Wall Mount Speaker

Full-range, minimum 4"-5" LF or better surface/wall mount loudspeaker, 4 to 8 ohms low impedance and 70V/100V operation, Frequency Response - 60 Hz - 19 KHz (-10dB), Power handling@ 70/100V : 30W or better, Sensitivity : SPL/W@1 Mtr - 84 dB SPL or better, Max SPL(peak) - 106dB or better and

inclusive of all mounting brackets, assemblies, hardware and standard accessories.

- Frequency range (-10dB) : should be between 60 Hz to 19 kHz or better
- Power Rating : minimum 30 W or better
- Maximum Peak SPL @ 1m : 106dB or better
- Drivers: Full range driver or 2-way - minimum 1 x 4"-5" LF Driver & minimum 1 x 0.75" HF Driver
- Coverage (conical): 110 degrees or higher
- Sensitivity 1W @1m : 84dB or better
- Impedance : 4 to 8 Ohms and 70/100V tapping operation

1.31. BOQ ITEM NO. 48

100 Watt Column Loudspeaker

Passive Multidriver Column Array Speaker with 5 or more Full range drivers with power output 100 Watt @ 70V /100V , frequency response : 130 Hz - 15 kHz (-10 dB), Sensitivity : SPL/W@1 Mtr - 89 dB SPL or better, Max SPL (peak) 116 dB or better, Coverage - 120 degree Horizontal x 30-45 degree Vertical and inclusive of Pan Tilt Wall mounting brackets, assemblies, hardware and standard accessories.

- Frequency range : should be between 130 Hz to 15 kHz or better
- Power Rating : minimum 100 W or better@70V/100V
- Maximum Peak SPL @ 1m : 116dB or better
- Sensitivity 1W @ 1m : 89dB or better
- Coverage (conical): 120H x 30-45 V degrees or better
- Driver : 5 or more full range drivers or combination of LF/HF

1.32. BOQ ITEM NO. 49

Four Channel Power Amplifier 4 x 240 W

Multi Channel Class D Power Amplifier with DANTE and Energy Star Certification delivering 4 x 240 W , Selectable 4/8 Ohms or 70V/100V operation , distortion <0.05%, Frequency response 20 Hz to 20 kHz, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc

(In case OEM is quoting dual channel amplifier configuration in that case they have to quote multiple Qty's. to match the minimum power requirements per Channel)

- Frequency Response : should be between 20 Hz to 20 KHz
- No. of Channels : should have 4 channels or equivalent
- Output Power per Channel: minimum 240 Watts per channel
- Should have DANTE Networking port
- selectable 4/8 ohms or 70/100V operation
- S/N Ratio : > 101 dBA
- THD 20 Hz - 20 kHz, 1 W: less than 0.1%
- Channel Separation (Crosstalk) : > 72 dB
- Amplifier Class: Class D Amplifier
- Cooling requirement: temperature level controlled fans for front to rear airflow
- Protection: should have overload protection, Thermal Protection etc
- Should have energy star certification

1.33. BOQ ITEM NO. 50

Dual Channel Power Amplifier 2 x 60 W

Dual Channel Commercial Class D Amplifier with DANTE and Energy Star Certification delivering 2 x 60 W @ 4/8 Ohms and 70V/100V, distortion <0.05%, Frequency response 20 Hz to 20 kHz, +0.5 / -1 dB, Crosstalk >72 dB, Signal-to-noise >101 dBA, supporting high frequency, thermal, and over current protection etc.

- Frequency Response : should be between 20 Hz to 20 KHz
- No. of Channels : should have 2 channels
- Output Power per Channel: minimum 60 Watts per channel
- Should have DANTE Networking
- selectable 4/8 ohms or 70/100V operation
- S/N Ratio : > 101 dBA
- THD 20 Hz - 20 kHz, 1 W: less than 0.1%
- Channel Separation (Crosstalk) : > 72 dB
- Amplifier Class: Class D Amplifier
- Cooling requirement: temperature level controlled fans for front to rear airflow
- Protection: should have overload protection, Thermal Protection etc
- Should have energy star certification

1.34. BOQ ITEM NO. 51, 52, 53

19" Floor Standing AV Racks – 15U, 22U, 36U

- Construction shall be high strength robust aluminium extruded frame structure with ventilation slots on the sides and top & bottom covers with provision to mount 4 fans on top cover.
- The thickness of the CRCA sheets used for doors and side panels shall be 1.2mm and 1mm respectively.

- Front and rear open-able doors shall be provided.
- Top and bottom covers and side panels shall be of sheet steel and shall be powder coated.
- Vertical 19" metric panel mounts and door trims shall be of sheet steel and powder coated.
- The top and bottom covers shall be provided with number of 50mm and 75mm round cable knockouts for cable entry and cable knockouts shall be edge protected with rubber grommets.
- Perforation - for full / split perforated doors the style should be" Honeycomb" type of perforation for maximum air circulation and stiffness.
- Cabinet shall be capable of dismantling and reassembling at the site, i.e., SKD or semi-knocked-down condition.
- Locks options shall be available such as slam lock - common key, unique key or a swing handle lock.
- Side panels must contain slam latches for locking purpose and option of providing slam locks, if required.
- Two pairs of 19" Equipment mounting angles with mounting holes conforming to IEC 2973 shall be provided.
- Front glass door shall be made of toughened glass, tinted with easily detachable hinges.
- Two Pair of slotted vertical cable channel shall be provided at front and back for managing cables.
- Lockable industrial grade castors with foot brakes.
- Rack shall be supplied with 2 x 90 CFM fans at top (for 15U) and 4 x 90 CFM fans at top (for 22U and 36U).
- Rack shall be supplied with equipment mounting hardware in pack of 100s such as mounting nuts and screws either 12-24 or M6 type as applicable
- Rack shall be equipped with minimum 2 nos. of 8 x 5/15 Amps power supply sockets, 2 nos. of vertical cable managers and 2 no. of 19" 1U size horizontal cable managers.
- Finish – cabinet shall be black or grey epoxy powder-coated of durable quality.

- Powder Coating – at least 80 Microns.
- Rack sizes – 600mmW x 600mmD for 15U & 22U, 800mmW x 800mmD for 36U.

1.35. BOQ ITEM NO. 54

Fully Digital Conference Control Unit (minimum 50 units)

Central Conference Controller with integrated Recording facility & Web Server for control, built-in Digital Signal Processing, control upto minimum 50 Discussion Unit and expandable upto 150 Discussion Unit ,USB port to connect USB Storage Device for Direct Recording of the Meeting.

LCD display to implement several Conference Mode: Direct access, Request, Push to talk, FIFO, Vox control, Selectable Voice Activation, Feedback Reduction, Audio Input & Output for connectivity with external sysytem ,LAN connection for web server or camera control protocol,4 digital RJ 45 ports,XLR out, XLR in, RCA in and two RCA out,Power connector with locking, complete with External power supply. OEM-specific cable shall be inclusive.

1.36. BOQ ITEM NO. 55

Fully Digital Chairman Unit

Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signalling ,Priority and Next-in-Line button, Priority button shall mute all delegate microphones and allows only the chairperson to speak, User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital.

Frequency Response: 30Hz-15kHz,Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length

1.37. BOQ ITEM NO. 56

Fully Digital Delegate Unit

Chairman Discussion Unit with built-in Digital Signal Processing, Shielded 400mm removable Gooseneck Microphone of cardioid polar pattern and immune to mobile phone interference, Microphone On/Off button or Request-to-speak push button with LED Signalling ,User Button with Feedback, Integrated loudspeaker, Headphone output with Volume Adjustment, Loop-through daisy-chain cabling, Audio Quality 16Bit digital.

Frequency Response: 30Hz-15kHz,Screw-lock socket Microphone connection etc complete with interconnecting cables of 2m length

1.38. BOQ ITEM NO. 41, 42, 43 & 57 THRU 66

Various AV Cables

Cables should meet following minimum specifications or better:

1	Microphone Cable	2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals, non-plenum
2	Speaker Cable	14 AWG Speaker Cable in existing conduit. Two X 14 AWG conductors, High performance cable for audio signals, Non-Plenum
3	Control Cable	2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20 AWG copper braided shielded cable for serial control/audio signals, non-plenum
4	HDMI Cables (1.5mtr/5ft, 5mtr/15ft, 10mtr/30ft, 15mtr/50ft, 20mtr/75ft)	Male to Male - Moulded Connector, 1080p/60 verified, Gold plated contacts
5	VGA with Audio (1.5mtr/5ft)	Male to Male VGA Cables With Audio- Moulded Connectors. VGA Cable: 15-pin HD Male to Male Moulded & Mini Stereo Audio Cable: 3.5 mm Stereo- 6' (1.5 m)
6	VGA Cable (5mtr/15ft, 10mtr/30ft)	Male to Male VGA Cables - Moulded Connectors, High performance cable designed for transmission of computer video and ID bit signals, Pin 9 is passed through from end to end, Terminated with high quality VGA moulded connectors
7	Shielded Twisted Pair Cable	24 AWG solid copper construction Shielded Twisted Pair Cable, SF/UTP design with four unshielded twisted pairs inside an overall braid and foil shield, IEEE/EIA/TIA 568.C2

1.39. BOQ ITEM NO. 69

16 PORT POE LAYER 2 MANAGEABLE NETWORKING SWITCH

Layer2 manageable networking switch, minimum 16 # 10/100/1000Tx ports, all ports capable of providing PoE+ as per 802.3at, switch having a PoE power budget of minimum 350 Watts, minimum 2 dedicated SFP ports.

Switch Architecture

- The switch should have 16 X 10/100/1000 Base-Tx ports; all ports shall be 802.3at-compliant PoE+ capable, with the switch capable of providing minimum 245 Watts of PoE power budget.
- The switch should also support PoE as per 802.3af on all ports.
- Switch should have 16 Nos. 10 Base-T/100Base-Tx/1000Base-Tx auto-sensing ports complying to IEEE 802.3, IEEE 802.3at, IEEE 802.3u and 802.3ab standard, supporting half duplex mode, full duplex mode and auto-negotiation on each port.
- Switch should have minimum 2 dedicated SFP ports.
- The switching fabric for all the LAN ports shall be non-blocking and each port shall run at wire-speed / line-rate. Switching fabric capacity of the switch should be capable to run all the ports at line-rate.
- Switch should support both IPv4 and IPv6 – Switch should support features like Neighbour Discovery, Syslog, Telnet, SSH, Web GUI, SNMP, NTP, DNS, RADIUS over IPv6
- Switch should have non-blocking switching bandwidth of minimum 36 Gbps.
- Switch should have forwarding rate of minimum 26Mpps.
- Switch should be IPv6-Ready from Day 1

Layer 2 Features

- IEEE 802.1Q VLAN tagging
- 802.1Q VLAN on all ports with support for minimum 255 VLANs.
- Support for minimum 16k MAC addresses.
- Spanning Tree Protocol as per IEEE 802.1d.
- Multiple Spanning-Tree Protocol as per IEEE 802.1s.

- Rapid Spanning-Tree Protocol as per IEEE 802.1w.
- Self-learning of unicast & multicast MAC addresses per switch port.
- Jumbo frames up to 9000 bytes.
- Link Aggregation Control Protocol (LACP) as per IEEE 802.3ad.

Security Features

- Switch should support MAC Address based Filters / Access Control Lists (ACLs) on all switch ports.
- Switch should support Port based Filters / ACLs.
- Switch should support RADIUS and TACACS+ for access restriction and authentication.
- Secure Shell (SSH) Protocol, HTTP and DoS protection.
- ARP spoofing, DHCP snooping etc.
- Switch should support static ARP, Proxy ARP, UDP forwarding and IP sourceguard.

Management Features

- The switch should support CLI as well as web-based Management.
- Switch should be SNMP manageable with support for SNMP Version 1, 2 and 3.
- Switch should support all the standard MIBs (MIB-I & II).
- Switch should support TELNET and SSH Version-2 for Command Line Management.
- Switch should support 4 groups of embedded RMON (history, statistics, alarm and events).
- Switch should support System & Event logging functions as well as forwarding of these logs to multiple syslog servers.
- Switch should support on-line software reconfiguration to implement changes without rebooting. Any changes in the configuration of switches related to Layer-2 & 3 functions, VLAN, STP, Security, QoS should not require rebooting of the switch.
- Switch should have comprehensive debugging features required for software & hardware fault diagnosis.

- Switch should support multiple privilege levels to provide different levels of access.
- Switch should support SNTP (Network Time Protocol).
- Switch should support FTP/TFTP for software upgrade.
- Switch support multiple configuration file & backup configuration file.

1.40. BOQ ITEM NO. 70

WIRELESS ACCESS POINT

- IEEE 802.11ac compliant, dual radio (2.4 GHz & 5GHz) concurrent operation
- 2x2 Multiple Input / Multiple Output (MIMO) access point
- Internal/external antennas for 2.4Ghz & 5GHz operations
- One 10/100/1000 Base-Tx auto-sensing (RJ45) PoE port
- AP must have two radios (2.4GHz & 5GHz)
- Maximum Associated Users: 240 (120 per radio)
- Power Supply: via an 802.3at POE switch port or OEM supplied Power Injector
- IEEE 802.3 10-BASE-T, IEEE 802.3u 100BASE-TX, 1000BASE-T, IEEE 802.3ab 1000BASE-T
- AP must include OEM supplied mounting brackets and accessories for both mounting options such as ceiling or wall

Security:

- WPA
- IEEE 802.11i WPA2
- WPA3 (Enterprise, Personal)
- Captive Portal (External RADIUS, Click-Through)

- IEEE 802.1X authentication and accounting

Encryption:

- WEP – 64 and 128 bit, TKIP-MIC: RC4 40 bit, 104 bit and 128 bit, SSL & TLS: RC4 128-bit
- PHY data rates up to 2.1Gbps per AP
- Support for band steering, client load balancing, LLDP
- Should support 802.1X authentication
- Should support centralized configuration and management and reporting
- Should support Wi-Fi Alliance Protected Access 1.0 (WPA) and 2.0 (WPA2)

1.41. BOQ ITEM NO. 71

32 CHANNEL AUDIO MIXER

min. 32 Channel high performance Audio Mixer unit with 16 Mic/Line + 8 Mic/Stereo Line Channels, 4 x AUX, USB-Audio Interface, with integrated digital FX processors and Dual Graphic-EQ's, low noise and low distortion discrete microphone preamps built-in, Group-switch-able +48V phantom power, AES in and out, Delay on inputs and outputs,

- No. of Channels: Should have Min 32 channel
- Inputs : 16 Mic / Line + 8 Mic / Stereo Line Channels, 4 x AUX
- Frequency response : Should have 20 Hz to 20 kHz
- THD + Noise : Should have <0.1%, @ 1 KHz
- USB-Audio Interface with integrated digital FX processors and Dual Graphic-EQ's.
- Shall have built in low noise and low distortion discrete microphone preamps.

1.42. BOQ ITEM NO. 72

Corded Vocal Microphone

Corded Vocal Hypercardioid dynamic Neodymium handheld microphone with Frequency Response of 60 - 14,000 Hz, Open Circuit Sensitivity -54 dB (1.9 mV) , Impedance-600 ohms , on/off switch, Integral 3-pin gold-plated XLRM-type connector, Rugged all-metal construction complete with stand clamp and threaded adaptor and Foam Wind Screen etc.

- Frequency Response : 60 – 14 kHz
- Impedance : 600-Ohms
- Sensitivity : -54 dB (1.9 mV)
- Switch : ON/OFF Switch
- Connector : 3 pin XLRM type

1.43. BOQ ITEM NO. 73

1x12" OR DUAL 8" PASSIVE LOUDSPEAKER

Full Range Two way Passive 12" or Dual 8" loudspeaker with RMS power 200 W or better, 8 Ohms, Frequency Range (-10 dB) 55 Hz - 20 kHz, System Sensitivity 97 dB or better , Coverage 90-100 Degree(H), 80-90 degree(V), Maximum SPL 126 dB Peak or better, birch plywood enclosure, Complete with accessories etc

- Frequency range: should be between 55 Hz to 20 kHz or better
- Power handling capacity (RMS/Peak): minimum 200W/800 W or better
- Maximum Peak SPL : 126dB or better
- Sensitivity 1W @ 1m: 97dB or better

- Coverage (conical): 90-100H x 80-90V degrees or better
- Driver: 1 x 12" or 2 x 8" LF, 2-way or better
- Impedance: 8 Ohms or better
- Enclosure: Birch Plywood with Built-in In Hanging Inserts

1.44. BOQ ITEM NO. 74

Dual 8" Passive Subwoofer

Compact Low Profile dual 8" Subwoofer with RMS power 400 W or better, 8 ohms, Frequency Range (-10 dB) 40 Hz - 200 Hz, System Sensitivity 97 dB or better ,Maximum SPL 129 dB peak or better, 2 x 8" bass driver, birch plywood enclosure, Complete with accessories etc

- Frequency range: should be between 40 Hz to 200 Hz or better
- Power handling capacity (RMS/Peak): minimum 400W/1600 W or better
- Maximum Peak SPL @ 1m : 129dB or better
- Sensitivity 1W @ 1m: 97dB or better
- Driver: 2 x 8" LF or better
- Impedance: 8 Ohms or better

**1.45. BOQ ITEM NO. 75
Dual Channel Power Amplifier with DSP**

Dual Channel power amplifier with Integrated DSP delivering 1200 W @ 4 Ohms, THD + N 20 Hz- 20 kHz for 1 W <0.01%, Signal-to-Noise ratio >102 dBA , Frequency Response 20 Hz- 20 kHz, LAN port for Control and software Graphic User interface for setting parameters

- Frequency Response: should be between 20 Hz to 20 KHz or better
- No. of Channels: should have minimum 2 channels

- Output Power per Channel: minimum 600 Watts @ 8 Ohms, 1200 Watts @ 4 Ohms per channel
- S/N Ratio: minimum 102dBA or higher
- THD 20 Hz - 20 kHz, 1 W: less than 0.01%
- Input Impedance: minimum 18 kOhms or better
- Integrated DSP – 40 multi-slope parametric equalizers, crossover with multiple filter types
- It shall have Ethernet-based networking for monitoring and control
- It should have 2 link outputs for Balanced inputs

1.46. BOQ ITEM NO. 76

Smart Lesson Capture & Faculty Development/Reflection System for 40 seater classroom

a) Lesson Observation, Feedback with 360-degree Camera

b) Lesson Audio Recording Microphone.

c) Smart & Intelligent Lesson Capture Recording System.

d) Smart & Intelligent Lesson Capture System Solution Software.

e) Teacher/Instructor Learning & Development Digital Online Training.

Class D Power Amplifier, 2 x 600 W, selectable 8 ohms operation, Power @ 70/100V : 450W or better, supporting short circuit, thermal, and under-voltage protection, 1U/2U form factor.

(A) Lesson Observation, Feedback with 360-degree Camera				
Sr. No.	Parameter	Detailed Specification		
1	Field of View	180+-degree Surface 2D, complete classroom captured from single ceiling mounted camera recording the entire classroom scene with no blind spots.		
2	V Cams	Optional de warped virtual views as separate video stream direct from camera.		

3	Technology	Digital Technology		
4	Video resolution	Minimum 3200 x 3000		
5	Frame rate	Minimum 10 fps		
6	Video Compression	H.264		
7	Mount	Multiple ceiling mounting options including: Surface mount, discreet flush concealed mount and hanging pendant mount.		
8	Motion Recording	Provide recording triggers based on motion in the scene. Including polygonal motion regions.		
9	Privacy Regions	Facilitate admin specified privacy regions which are not recorded or streamed.		
10	Power	<10 W supported		
11	Image Features	1. Automatic white balance (AWB): 2,500K to 8,000K		
		2. Wide Dynamic Range (WDR): Electronic WDR 60dB		
		3. Brightness		
		4. Sharpness		
		5. Contrast		
		6. Saturation		
		7. Exposure compensation		
12	Robustness	Fixed, precision factory-focused, thermally stable optical system.		
13	Vandal Resistance	Optional vandal resistant dome		
14	Multiple Purposes of the Cameras	It shall be possible for the camera to generate minimum two streams which can be separately used for general surveillance software and Lesson Capture system software		
15	Warranty	Comprehensive warranty for 3 years		
16	Certifications	IEEE802.3af, CE, AS/NZS CISPR 22:2009+A1:2010, CISPR 24:2010 (Class A), FCC, ICES-003, KCC, CU, RCM, SASO UL 60950-1(ed.2) & CAN/CSA C22.2 No. 60950-1-07, RoHS, REACH		

(B) Lesson Audio Recording Microphone				
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Sr. No.	Parameter	Detailed Specification		
1	Type	Studio-grade boundary microphone		
2	Transmission mode	Cable		
3	Polar Pattern	Semi Cardioid		
4	Audio Freq mode	30-20000 Hz		
5	SPL	Support up to 140 dB		
6	Power Input	48 VDC, phantom power		
7	Sensitivity	22mV/Pa		
8	Cable Length	6 m		
9	Warranty	Comprehensive warranty for three years		
10	Mounting	Wall or desk mounting.		

C) Smart & Intelligent Lesson Capture Recording System.				
Sr.No.	Parameter	Detailed Specification		
1	Smart IOT	Status reporting of equipment to cloud including connected devices and their status, internal temperature, network status.		
		Remote control and system management including passwords, system updates, camera power control.		
		Single unit plug and play solution.		
2	Networking	DHCP Client or Manual configuration for the system connection to the School network.		
		Auto network configuration of camera network settings including DHCP Router.		
3	Security	Advanced internal physical firewall protection to prevent unauthorized access to camera and recordings.		
		Limit network access to video to specific source endpoints.		
4	Asset tracking	Automatic Reporting of MAC address of connected devices.		

5	Camera Connection	Power over Ethernet supply to camera, power and network to camera provided on single cable. IEEE standard 802.3af		
6	Power	DC 12-48 V power.		
7	Audio Pre-Amplifier	+48 V Phantom power for condensing boundary microphone		
		Microphone gain control		
		Microphone Input XLR		
8	Audio encoding	PCM audio, minimum sample rate 22050/s, AAC codec, minimum 16kbps		
9	Recording Video	Capture and record video from the camera 24/7		
10	Recording Audio	Capture and record audio 24/7 from the microphone		
11	Storage	Provide storage for a minimum 4 weeks continuous recording of school day. 2TB HDD per camera		
12	Encryption	Encryption of all recorded video and audio to PyCrypto, AES-256 (32-byte key)		
13	Secure communication	All user interactions, login and video communication are sent over https with SSL and encryption.		
14	Physical Security	Facilitate physical security of recorded content.		
15	Certifications	CE, FCC/CFR 47, ICES-003, IEC 60950-1(ed.2), IEC 60950-1(ed.2); am1, IEC 60950-1(ed.2); am2, CAN/CSA C22.2 No. 60950-1-07, RoHS, Reach		
16	Warranty	Comprehensive warranty for three years		
17	System software features	Remote management and software updates		
		Continuous uninterrupted recording of video and audio		
		Automatic encryption of recorded video and audio		
		Seamless communication with cloud infrastructure		
		Secure Encrypted Transfer of recorded video to cloud storage		
		Local Live stream of video and audio		
		Local archive video access		
		Accessible from any point on the same school network.		

		Software provided by same solution as cloud service.		
18	Cloud infrastructure	System will seamlessly communicate with Smart & Intelligent Lesson Capture Cloud		
		Seamless video viewing whether video is in cloud or local, same user interface, experience, login and features.		
		Provision for 2 hours of video stored in the cloud per classroom at any time		
		Provision for 2 hours of viewing from cloud per classroom per month		
		Optional additional cloud storage and viewing available with additional charges		

d) Smart & Intelligent Lesson Capture System Solution Software.				
Sr. No.	Parameter	Detailed Specification		
1	Application Usability	Web browser delivered SAAS user software		
		No requirement for installed software on user's PC		
2	Management	Remote automated management and software updates		
		Secure user management and authentication		
3	Cloud Capabilities	Support Local and Cloud Live camera streaming		
		Support Local and Cloud recorded video access		
		User-selective moving of video clips to cloud storage and sharing		
		Support optional provision of additional cloud storage to facilitate long-term or larger-scale lesson storage and sharing. At additional charge.		
4	Access Management	Users can access multiple organization from a single login		
5	Teacher Calendar Management	Users/Teachers provided with a calendar view, highlighting lessons they have or will have access to, clips they have created or been shared. They can use this calendar interface to access video from a specific time and day.		
6	User Based Camera Management	Smart scrubber for video interrogation including zooming		
		Role based permissions structure		

	nt	Restricted Camera Access based on users' predefined timeslots with 1-minute granularity		
		Allocate single or recurring camera access timeslots retrospectively or in advance		
		User can request and have approved via the system timeslots to access specific cameras		
		Access recorded video directly from user friendly calendar showing video access slots		
		Comprehensive classroom recording schedule management		
		Secure user-based camera management		
		Automatic camera password management		
7	Activity Tracking & Management	Email notifications of assigned camera access		
		System alert emails		
		Full user activity auditing and tracking		
		Granular auditing of user activity on videos including, zooming and video position, play, pause and seek events		
8	Clip Creation & Management	Create and save clips of video		
9		Store and organize clips in customizable folders and folder tree		
		Advanced sharing options of clips and folders to internal and external users, via the local gateway or via the cloud (by permission only)		
		Seamless optional synchronization of clips and folders to the cloud by available permissions only		
		Creating and sharing of clips all facilitated within the system without external export of content, to maintain security.		
		Ability to remove a user's access to clips retrospectively.		
		When creating a clip the user can zoom and change their view from the camera and this moving view is shared with the viewer of a clip to facilitate following a teacher or student round the room. The viewer can still look around the full scene if they choose.		
		Share comments in clips and collaborate with other users		
10	Camera Viewing	View camera from multiple views simultaneously, such as zoomed in on two separate students		

		Store predefined views and groups of views for recall and sharing		
		View multiple cameras and classrooms simultaneously		
		Dynamic user interface supporting traditional and touch displays and full screen viewing modes		
11	Record and produce graphical outputs of moments	While reviewing live or recorded lessons, manually create and record moments against the timeline of the lesson.		
		Provide search for moments and display moments against a section of recorded video, link from moment to the video for easy review of the event.		
		When creating moments, choose from specified list of key moments specified by the teacher development methodology as described in the Training and Development section. Add specific text as needed.		
		Or create basic moments with user generated comments		
		Produce smart dynamic graphical output of those manually created moments to aid in the reflection and assessment of the lesson and the teacher's progress. Output to be as required by the methodology as described in the Training and Development section.		
12	Enhancing teacher's smart development & professional growth	Strengthening teachers 'capabilities for implementing Smart Education. These centres around lesson observation, self-reflection and peer review of the dynamic learning environment. This should be implemented in three below mentioned ways		
		Step 1: Machine generated smart reports on basic activity levels of the lesson. These reports shall be audio and motion histograms showing volume of audio and intensity of video motion on the timeline only.		
		Step 2: Self-reflection, review and recording of the lesson environment using the creation of key moments in line with the Training Methodology. Creating and reviewing this metadata via the graphical timeline outputs along with the outputs from step 1 allows for self and coach review of the lesson and teacher improvement.		
		Step 3: It shall be possible to share, videos and graphical metadata with internal or external coaches / mentors for teacher training and development.		
E) Faculty /Instructor Learning & Development Digital Online Training.				
Sr.	Parameter	Detailed Specification		

No.				
1	Online Accessibility	Training content should be provided online and accessed and administered via secure administrator and user IDs and passwords		
2	Multi-platform access	Training provided with multi-platform accessibility to all courses and content		
3	System Setup Guidance	Online training to provide comprehensive setup, configuration and user guidance manual for the lesson capture system administrator		
4	System Usage Guidance	Online training to provide comprehensive instruction and guidance for teacher users on how to use the lesson capture system to record, review, share and interrogate the captured classroom video		
5	Learning Management	Online training courses provided via a learning management system facilitating user invitation or allocation, saved progress and staged progression.		
		The system shall present reports in such a way that senior leaders in the schools could track the progress of their teachers doing the courses and training. For example a Principal at a school or HOD at a college could be set up as a “team leader” and then supervise their teachers/ instructor/professors progress through the course.		
6	Teacher Development, Self-reflection training.	Online training courses for teacher users on how to review, reflect and notice and record critically important moments from the video of the classroom. Advice for teachers and coaches/mentors on how to analyse and reflect on the data produced.		
7	Academic Credibility	Teacher development, training and progress monitoring course and methodology, based on evidence from recent academic research and recent educational published literature.		
8	Peer Credibility	Methodology being used will have established examples by other institutes of repute globally.		
9	Integration	Teacher development training, to be fully bespoke and relevant to the Smart & Intelligent Lesson Capture System including best usage of the features of the system to achieve improvement.		
10	External mentorship and coaching	External mentors trained in the methodology shall be available for hire for such services at separate & additional cost. It is beyond the scope of this tender.		
11	Additional training and development	Additional training courses and coaching shall be available at separate & additional cost to develop further usage and skills within the methodology for more advanced teachers, heads of department or internal teacher trainers.		

LIST OF ACCEPTABLE MAKES / MANUFACTURERS

Sr. No.	Item Description	Acceptable Make/Brand/Manufacturer
1	Video Signal Equipment – Switcher, Cable Cubby, Scalars, Extenders for HDMI, VGA, Distribution Amplifiers, Control Processor, Wired Button Panel etc.	Crestron, Extron, Kramer
2	Wireless Touch Screen device for Control (iOS or Android based).	Apple, Samsung
3	Lecture Recording and Streaming Device	Extron, Lumens, Mediasite, Panopto
4	i) Live Streaming and VoD Application Software Platform, Hosting Solution	

	ii)Servers and Storage for Live Streaming and VoD Platform as above; OS platform and other environment such as databases etc., if any, shall be as per software application OEM requirements	Dell, HPE, Lenovo
5	Wireless Presenter System	Barco, Vivitek, Crestron
6	Lecture Capture Camera (AV Camera)	Lumens, Sony, Panasonic
7	Document Camera – Ceiling Mounted and Desktop Mountable	Lumens, Vaddio, WolfVision
8	Video Conferencing Endpoints – Codecs, Camera & Mic POD	Cisco, Polycom, Avaya,
9	Digital Podium with 22" Interactive Panel	AHA, Tecom, UNI
10	19" Touch Enabled Display	Acer, Planar, Parblo, Viewsonic
11	Desktop PC for AV	Dell, HP, Lenovo
12	Ultra Short Throw /Laser Projectors – 5000, 6000 and 15000 Lumens, 1-Chip DLP	Barco, Christie, Digital Projection
13	Motorized Projection Screens	Dalite, Draper, Prima
14	19", 55", 65" LED Display	Panasonic, Samsung, LG
15	Wired and Wireless Microphone System including cables for wireless antenna	Beyerdynamic, Electrovoice, Sennheiser, Audio Technica
16	Microphone, Speaker and Control Cable	Belden, Klotz, Kramer
17	Audio DSP	Bi-amp, Bose, Audio Technica
18	4" and 3" Speakers, 12" & 15" Loudspeaker and Subwoofer	Bose, Electrovoice, Tannoy
19	Column Speakers	Bose, Renkus-Heinz, Tannoy
20	Audio Amplifiers	Bose, Dynacord, Labgruppen, Power Soft
21	AV Racks	APW Vero President, Panduit, Rittal, Dynamic
22	Digital Audio Conferencing System	Beyerdynamic, Bosch, Sennheiser, Shure, Telvic
23	Video Cables (HDMI, VGA+Audio, DisplayPort DP/miniDP) and USB, Shielded CAT6 cable	Crestron, Extron, Kramer, Kanex Pro
24	AV Networking Switch and AV-Wireless Access	Cisco, HPE, Juniper, Allied

	Point	Telesis
25	Mixer	Behring, Allen & Heath, Yamaha
26	AV Connectors as may be required	OEM Standard or Amphenol, Neutrik
27	Smart Lesson Capture & Faculty Development/Reflection System	IRIS, Onvu Learning

SECTION V – Commercial Price Schedule

**(After percentage quote of at par /below/above than ECPT:
To be uploaded in .xlsx format as per Price Bid Format
acceptable to the portal and as published)**

Sr. No	Items Descriptions	Qty	Rate/Unit in (INR)	Total Price (INR)
		(X)	(A)	(Y=A*X)
1	SITC of modular configurable type flushmount / table top AV signal aggregation unit for various AV inputs. It should be complete with enclosure, inner frame, power socket and power cord etc. for min. requirement of 1 x HDMI, 1 x Display port, 1 x VGA+ 3.5mm audio, 1 x RJ-45 Ethernet LAN, 1 x 10Amps power outlet.	32		
2	SITC of 3 I/P Switcher cum Transmitter with Audio embedding; supporting video output on a cable length up to 230 ft. (70 meters) on CAT6; Input: 1 x HDMI, 1 x Display port, 1 x VGA + Audio 3.5mm; Output: video output shall be on a single CAT6 shielded twisted pair cable; Auto switching between inputs; the device shall be HDCP compliant and with EDID support.	32		
3	SITC of HDMI Twisted Pair Receiver, for receiving HDMI, control and analog audio up to 230 feet (70 meters) over a shielded CAT6 cable; Input: One CAT6 twisted pair input on RJ-45; Outputs: One HDMI and one Audio; the device shall be HDCP compliant and with EDID support.	57		

4	SITC of HDMI Twisted Pair Extender, Transmits HDMI and control signal up to 230 feet (70 meters) over a shielded CAT6 cable, Output: One CAT6 twisted pair output on RJ-45, Inputs: One HDMI, Supports EDID and HDCP transmission.	38		
5	SITC of HDMI active wall plate, 1 x HDMI input & 1 x CAT6 output supporting up to 230 ft. (70 meters), device should support HDCP and EDID transmission.	3		
6	SITC of passive HDMI plate.	5		
7	SITC of Wireless Presentation Unit of HD content using laptops, tablets, and smartphones. Compatible with Windows OS X, Apple iOS, and Android, Supports Full HD 1080p display resolutions; shall provide minimum 1 x HDMI output.	11		
8	SITC of scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x CAT6, and minimum three video outputs - 2 x HDMI and 1 x CAT6, and 1 x audio output. It shall support resolutions upto 1920 x 1200. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant.	7		
9	SITC of scalar cum matrix switcher having minimum six inputs - 4 x HDMI and 2 x VGA+Audio, minimum 2 x HDMI outputs and 1 x audio output; It shall support resolutions upto 1920 x 1200. It shall support auto selection of inputs and the device shall be EDID and HDCP compliant.	8		
10	SITC of 1:8 Distribution Amplifier having 1 x HDMI input and minimum 8 x HDMI outputs, shall be EDID and HDCP compliant.	4		
11	SITC of 1:4 Distribution Amplifier having 1 x HDMI input and minimum 4 x HDMI outputs, shall be EDID and HDCP compliant.	7		
12	SITC of Control Processor, with minimum ports as follows: 4 x bidirectional RS-232 serial ports, 1 x bidirectional RS-232/RS-485 serial port with hardware and software handshaking, 4 x IR/Serial ports for one-way control of external devices, 4 x Digital I/O ports, 4 x relays for controlling room functions, 1 x RJ-45 Ethernet monitoring and control, Supports 10/100/1000Base-T.	11		
13	SITC of podium mountable, minimum 8-Button wired control panel for controlling various devices; it shall have - one volume control knob; minimum 3 x RS 232, 3 x Relays and 2 x IR ports, 1 x LAN, to control the devices.	4		
14	SITC of minimum 9" Wireless Touch Screen device for Control (iOS or Android based).	6		
15	Supply of Audio and Video Recording and Streaming hardware with following built-in Inputs (HDMI / VGA/ IP LAN), HDMI / VGA Out, Audio Inputs, with ability to record upto 4 full motion video inputs in single frame alongwith audio, Should have minimum 1TB inbuilt storage.	6		
16	SITC of Lecture Recording and Video Live Streaming server application Solution - It shall be inclusive of Live Recording Application Software, industry grade Intel based Server Hardware for hosting the recording application and storage of Video for VoD, Hosting Platform and associated charges as per the technical specifications. The AV integrator shall provide a complete end-to-end solution by integrating mix of platforms. Any onsite customization, development and integration such as providing YouTube type of experience over intranet, proprietary media player, customer's logo etc. shall be within the scope of the AV integrator.	1		

17	SITC of Full HD/1080p, PTZ Camera for presenter capturing having minimum 20 x optical zoom, minimum 60 presets and minimum output- 1 x HDMI or HD-SDI or OEM specific output, 1 x RS- 232/422 for control. However, if supported output format is other than HDMI, same shall be converted to HDMI using suitable interface unit or cable convertor.	6		
18	SITC of Full HD/1080p, ceiling mounted Document Camera with minimum 16x optical zoom — 1 x HDMI or DVI output and 1 x LAN port. DVI models shall be acceptable with external DVI to HDMI convertor interface unit or cable.	1		
19	SITC of Full HD/1080p, Table Top Mountable Document Camera with minimum 20x optical zoom— 1 x HDMI or DVI output. DVI models shall be acceptable with external DVI to HDMI convertor interface unit or cable.	15		
20	SITC of Full HD Video Conferencing System endpoints (codecs), capable of multi-party conferencing via the MCU; the codec shall have minimum 2 video inputs (1 x HDMI/HDCI and 1 x HDMI/DVI as per OEM's camera), minimum 2 x HDMI video outputs, output resolution supported shall be minimum up to 1920 x 1080p at 60fps. Audio Inputs - 1 x Digital Microphone pod, 1 x RCA Stereo; Audio Outputs - 1 x HDMI embedded, 1 x Stereo, 1 x RCA. The device shall be supplied with required licences. All components of the VC system like Codec, Camera, Touch panel and Microphones should be from the same OEM. The system shall be inclusive of - 1 x Codec, minimum 1 x Full HD 1920 x 1080 resolution supporting camera providing HDMI or DVI output having min. 12x optical zoom with connecting cable, The codec must be based on ITU standards & hardware based. No software-based solution will be accepted. It should support latest video standards H.264/H.265.	2		
21	SITC of Annotation Device having minimum 2 x HDMI inputs and minimum 2 x HDMI outputs. Device shall be capable of printing captured content with the help of a printer.	12		
22	Supplying, installation, testing and commissioning of Sleek Digital Podium built in Metallic Frame and Wooden Top with built-in 22" Interactive Panel (Electromagnetic Technology) with Motorized Tilting, Motorized Height Adjustment of the Podium as per user height, Built-in Connectivity for HDMI, USB, Power for External Laptop at the Top, Space to place CPU.	12		
23	SITC of Desktop PC with Intel Core i7 or higher with min. 8GB of RAM DDR4, 1TB SATA II hard drive, 10/100/1000 Mbps Ethernet Network Interface Card, including additional 2-port Matrox or NVidia Graphics Card with minimum 1GB dedicated Graphics RAM for providing HDMI output to switcher for projection and another HDMI output for connecting 21/22" LED PC monitor for local display supporting minimum resolution upto 1920x1200. It shall be provided with licensed Operating System Windows 10 or above, Licensed Microsoft Office latest version, USB wireless Keyboard, USB wireless Mouse, minimum 1 x USB2.0 spare port.	7		
24	SITC of Ultra Short Throw Projector - LCD/DLP Technology, minimum ANSI 3600 Lumens, 16:10 Aspect Ratio, WXGA 1280 x 720 Native Resolution, Minimum Ports - 1 x HDMI, 1 x D-Sub 15 pin VGA + 3.5 mm Audio Jack, 1 x wired (RJ-45) LAN Port or wireless connectivity for configuration, 1 x USB or 1 x RS232/LAN for control	8		

25	SITC of Laser type Projector -LCD/DLP Technology, minimum 6500 ANSI Lumens, 16:10 Aspect Ratio, Resolution : WUXGA (1920 x 1200), Contrast Ratio: 3000000:1 Minimum Ports - 1x HDMI, 1 x D-Sub 15 pin VGA + 3.5 mm Audio Jack, 1 x HDBaseT (RJ-45) for receiving video over CAT6 or twisted pair, 1 x wired (RJ-45) LAN port or 1 x RS232 for control. The projector shall be complete with mounting brackets and all such accessories for mounting including poles/rods for ceiling installation, as may be required.	4		
26	SITC of minimum 80" diagonal High Gain Material Tubular Motorized Projection screen with 16:10 Aspect Ratio. (approx. 1771mm x 996mm, 2032mm diagonal minimum), inclusive of all items such as relay box, LVC unit or any other IOs for motorized operation as required. (Tab tensioned for short throw projectors)	8		
27	SITC of minimum 137" diagonal High Gain Material Tubular Motorized Projection screen with 16:10 Aspect Ratio. (approx. 3010mm x 1694mm, 3454mm diagonal minimum), inclusive of all items such as relay box, LVC unit or any other IOs for motorized operation as required. (Tab tensioned for short throw projectors)	1		
28	SITC of minimum 150" diagonal High Gain Material Tubular Motorized Projection screen with 16:10 Aspect Ratio. (approx. 3320mm x 1868mm, 3810mm diagonal minimum), inclusive of all items such as relay box, LVC unit or any other IOs for motorized operation as required. (Tab tensioned for short throw projectors)	4		
29	SITC of 65" narrow bezel LED Professional 4K UHD display, 16:9 Aspect ratio, min. 2 x HDMI Interfaces, inclusive of all mounting bracket.	4		
30	SITC of 65" narrow bezel LED Professional Display, 1920 X 1080 Resolution, 16:9 Aspect ratio, min. 2 x HDMI Interfaces, inclusive of all mounting bracket.	9		
31	SITC of 55" narrow bezel LED Professional Display, 1920 X 1080 Resolution, 16:9 Aspect ratio, min. 2 x HDMI Interfaces, inclusive of all mounting bracket.	12		
32	SITC of maximum 19" LED Monitor, minimum 1366 X 768 Resolution, 16:9 Aspect ratio, should have minimum 1 x HDMI port, inclusive of all mounting brackets and customization for flush mounting as required at site.	4		
33	SITC of Gooseneck Microphone consisting of - 1 x Gooseneck Microphone with base and programmable switch; Min. Frequency Response - 80Hz - 13 KHz, Polar Pattern : Cardioid; Transducer : Condenser type; Max SPL: min. 100dB; with 3 pin XLR connectivity, complete with standard accessories.	11		
34	SITC of UHF True Diversity Wireless Microphone System consisting of - 1 x Receiver, 1 x Lapel Microphone with body pack; RF Frequency Range - as per respective OEM, however, minimum 8 or higher pre programmed selectable channels per frequency range shall be available in the receiver; Polar Pattern : Cardioid / Hypercardioid / Supercardioid; THD : <0.9% or better; RF Power : 30mW or better; S/N Ratio : >100 dB or better, complete with all cables and standard accessories. (All cables shall be original OEM supplied) The wireless microphone system shall support simultaneous operation of 4 or more wireless microphones per room/area.	13		

35	SITC of UHF True Diversity Wireless Microphone System consisting of - 1 x Receiver, 1 x Headworn Microphone with body pack; RF Frequency Range - as per respective OEM, however, minimum 8 or higher pre programmed selectable channels per frequency range shall be available in the receiver; Polar Pattern : Cardioid / Hypercardioid / Supercardioid; THD : <0.9% or better; RF Power : 30mW or better; S/N Ratio : >100 dB or better, all cables and standard accessories. (All cables shall be original OEM supplied). The wireless microphone system shall support simultaneous operation of 4 or more wireless microphones per room/area.	3		
36	SITC of UHF True Diversity Wireless Microphone system consisting of - 1 x Receiver, 1 x Handheld Microphone with transmitter; RF Frequency Range - as per respective OEM, however, minimum 8 or higher pre programmed selectable channels per frequency range shall be available in the receiver; Polar Pattern : Cardioid / Hypercardioid / Supercardioid; THD : <0.9% or better; RF Power : 30mW or better; S/N Ratio : >100 dB or better, , complete with all cables and standard accessories. (All cables shall be original OEM supplied). The wireless microphone system shall support simultaneous operation of 4 or more wireless microphones per room/area.	19		
37	SITC of UHF antenna divider, 4-way, active, 19" housing, 1 U, for wireless systems with BNC connector, incl. mic.cable set and rack mount brackets. All cables and connectors for wireless system shall be original OEM supplied.	10		
38	SITC of UHF directional wideband active antenna, for wireless systems and in-ear systems, active and passive connectors, inclusive of antennae cable, minimum 20mtrs. All cables and connectors for wireless system shall be original OEM supplied.	20		
39	Supply and Laying of Antenna Cable 25 m (82 ft.). All cables and connectors for wireless system shall be original OEM supplied.	20		
40	SITC of Antenna Combiner (2 inputs / 1 output), to combine the antenna signals of a maximum of 4 transmitters. All cables and connectors for wireless system shall be original OEM supplied.	14		
41	Supply and laying of 2 core 20 AWG shielded twisted pairs cable with individual drain wires or 20AWG copper braided shielded cable for microphones.	440		
42	Supply and Laying of 2 core 14 AWG speaker cable for high performance audio.	950		
43	Supply and Laying 2 core 20 AWG shielded twisted pairs cable with individual drain wires for Rs- 232/Control/IR.	1450		
44	SITC of 12x8 DSP - Digital Matrix Processors, with 12 mic/line inputs and 8 outputs with AEC - Acoustic Echo Cancellation features.	5		
45	SITC of 6x4 DSP - Digital Matrix Processors, with 6 mic/line inputs and 4 outputs.	9		
46	SITC of full-range or 2-way minimum 3" or better ceiling mount loudspeaker, 4/8 ohms or 70V/100V operation, Frequency Response - 95 Hz - 17 kHz (-10dB), Power handling@70/100V : 20W or better, Sensitivity : SPL/W@1 Mtr - 86 db or better, Max SPL@1 Mtr - 103dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories.	4		

47	SITC of full-range, minimum 5" surface/wall mount loudspeaker, 4/8 ohms or 70V/100V operation, Frequency Response - 60 Hz - 20KHz (-10dB), Power handling@70/100V : 30W or better, Sensitivity : SPL/W@1 Mtr - 90 dB SPL or better, Max SPL@1 Mtr - 110dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories.	16		
48	SITC of full-range 150W or better column type left and right loudspeaker, 8-ohm impedance, frequency response: 80 Hz - 20 KHz, Sensitivity: SPL/W@1 Mtr - 93 dB SPL or better, Max SPL@1 Mtr - 115 dB or better and inclusive of all mounting brackets, assemblies, hardware and standard accessories.	20		
49	SITC of Class D Power Amplifier, 4 x 300 W, selectable 4/8 ohms or 70/100V operation, Power @ 70/100V: 300W or better, supporting short circuit, thermal, and under-voltage protection, 1U/2U form factor.	5		
50	SITC of Dual Channel Class D or Class AB Power Amplifier, 2 x 80 W @ 8 ohms, Comprehensive short circuit, thermal, and under-voltage protection, 1U/2U form factor.	8		
51	SITC of 17U AV Rack: AV equipments rack, minimum 600mm x 600mm floor mounted rack, castor wheels for free movement, front glass door, heat dissipation fans minimum 2 x 90cfm; power distribution units minimum 8 x 6/16Amps sockets.	10		
52	SITC of 22U AV Rack: AV equipments rack, minimum 600mm x 600mm floor mounted rack, castor wheels for free movement, front glass door, heat dissipation fans minimum 2 x 90cfm; power distribution units minimum 8 x 6/16Amps sockets.	3		
53	SITC of 36U AV Rack: AV equipments rack, minimum 800mm x 800mm floor mounted rack, castor wheels for free movement, front glass door, heat dissipation fans minimum 4 x 90cfm; power distribution units minimum 8 x 6/16Amps sockets.	3		
54	SITC of Fully digital Main/Central Conference Controller. Unit should be able to control and power 30 units or more, should have LED/LCD display for necessary controls and configuring the system, min. 6 or better open microphone support, daisy chain connectivity through CAT6 shielded cable via RJ-45 or OEM-specific cable via OEM-specific socket. OEM-specific cable shall be inclusive.	3		
55	SITC of Fully Digital Chairman Unit - Table Top/Flush Mounted, inclusive of pluggable/fixed unidirectional microphone minimum approx. 15" (400mm) stem length, press-to-talk key, in-built speaker, should have 2 buttons – one for Mic on/off and one for Priority, and RJ45 socket or OEM specific standard connectivity.	3		
56	SITC of Fully Digital Delegate Unit - Table Top/Flush Mounted, inclusive of pluggable/fixed unidirectional microphone minimum approx. 15" (400mm) stem length, press-to-talk key, in-built speaker, should have 1 microphone button, and RJ45 socket or OEM specific standard connectivity.	65		
57	Supply and Laying Flexible High Speed HDMI Cables. 20 Mtrs.	6		
58	Supply and Laying Flexible High Speed HDMI Cables. 15 Mtrs.	21		
59	Supply and Laying Flexible High Speed HDMI Cables. 10 Mtrs.	18		
60	Supply and Laying Flexible High Speed HDMI Cables. 5 Mtrs.	15		
61	Supply and Laying Flexible High Speed HDMI Cables. 1.5 Mtrs.	192		

62	Supply and Laying of VGA + Audio Cables. 1.5 Mtrs.	37		
63	Supply and Laying of VGA + Audio Cables. 5 Mtrs.	4		
64	Supply and Laying of VGA + Audio Cables. 10 Mtrs.	4		
65	Supply and Laying Flexible High Speed Display port Cables. 1.5 Mtrs.	37		
66	Supply and Laying 24 AWG, 4 Pair, Shielded UTP Category 6 Cable (300mtr/1000ft box).	5		
67	Supply and Laying of USB cable 1.5 Mtrs.	11		
68	SITC of USB Extender, Pair of Transmitter and Receiver to transmits and receive the USB signal upto 230 feet (70 meters) over a shielded CAT6 cable.	4		
69	SITC of Layer2 manageable networking switch, minimum 12 # 10/100/1000Tx ports, all ports capable of providing PoE+ as per 802.3at, switch having a PoE power budget of minimum 350 Watts, minimum 2 dedicated SFP ports.	15		
70	SITC of Wireless IEEE 802.11ac Wave2 compliant Access Point supporting dual radios (2.4GHz & 5GHz) operation, 3 x 3 MIMO, One 10/100/1000 Base-Tx auto-sensing (RJ45) PoE port. The AP shall be wall mountable as well as ceiling mountable (provide both options).	15		
71	SITC of min. 22 Channel high performance Audio Mixer unit with 16 Mic/Line + 4 Mic/Stereo Line Channels, 4 x AUX, USB-Audio Interface, with integrated digital FX processors and Dual Graphic- EQ's, low noise and low distortion discrete microphone preamps built-in, Group-switchable +48V phantom power	1		
72	SITC of Corded Vocal Microphone , with frequency response 80Hz-16kHz, Cardioid, Super-Cardioid polar pattern or better pattern, sensitivity of min. 2.2mV/Pa or better and min. impedance 600 ohm or better including microphone stand.	5		
73	SITC of 1x12" or better passive loudspeaker, Inclusive of all mounting brackets, assemblies, hardware and standard accessories for portable/outdoor application.	2		
74	SITC of 1x15" or better passive subwoofer Max. power handling capacity of 1600 Watts with 8 Ohm impedance. Inclusive of all mounting brackets, assemblies, hardware and standard accessories for portable /outdoor application.	2		
75	SITC of Class D Power Amplifier, 2 x 600 W, selectable 8 ohms operation, Power @ 70/100V: 450W or better, supporting short circuit, thermal, and under-voltage protection, 1U/2U form factor.	2		
76	Smart Lesson Capture & Faculty Development/Reflection System for 40 seater classroom a) Lesson Observation, Feedback with 360-degree Camera b) Lesson Audio Recording Microphone. c) Smart & Intelligent Lesson Capture Recording System. d) Smart & Intelligent Lesson Capture System Solution Software. e) Teacher/Instructor Learning & Development Digital Online Training.	6		

RA-76	Supply and Fixing of RS Pro Aluminum Floor Cable Trunking - Self Adhesive From RS Pro, a range of aluminum floor cable trunking designed for mounting on floors for routing low voltage and signal wires in high traffic areas. This trunking consists of a warp proof self-extinguishing PVC inner rail and a low-profile high impact decorative convex extruded aluminium top cover. RS PRO Grey Floor Trunking, W50 mm x D9.8mm, L1m, Aluminium Alloy (Lid), PVC (Base), Color as per the surroundings matching with interior aesthetics, approval by client before supply	10		
RA-77	Vertical Cable Manager or floor to table : Supply and Fixing of 10 x 15mm 1m Cable Drag Chain Wire Carrier, Material: Nylon. Length: 1000mm. Inside Diameter : 10 x 15 mm. Outer Dimensions: 13 x 25 mm. A thickness of material: 1.25 mm. Color as per the surroundings matching with interior aesthetics, approval by client before supply	50		
RA-78	Supply and Fixing of Protective wires, AV cables and electrical cords up to 5/8" in outside diameter Manufactured from durable rubber and approx weighs 20 lbs. Includes 3 channels to easily manage multiple cables and wires Can be easily cut down to desired lengths, Designed to meet office and residential cable management needs and reduce trip hazards, Slit on the underside to easily insert cords. Approx length Length approx. 348-1/2", Width3-1/4" Height1" Weight20 lbs. Number of Channels1 Outside Diameter5/8" Material Rubber , 29foot -1 Coil, Color as per the surroundings matching with interior aesthetics, approval by client before supply	20		
RA-79	Supply and Fixing of J Channel Desk Cable Organizer by Simple Cord – 5 Black Raceway Channels - Cord Cover Management Kit for Desks, Offices, and Kitchens. Desk Cable Management System, Conceal and organize unsightly cords in the office with the J Channel Cable Organizer. Features Easy to install with extra-strength self adhesive tape, this kit includes five black raceways to conceal up to 80 inches of cable. Includes five 16-inch raceway channels with self adhesive tape , Channels fit up to 8 cables and cords, depending on thickness, Raceway channels can be custom cut to fit any space, Designed to work behind, under, or around desks. Color as per the surrounding's matching with interior asthetics, approval by client before supply.	50		
RA-80	Supply and Fixing of Aluminum Cable Raceway, Width 120mm, 240mm, 360mm, Length 2000mm, Rail Height 100mm, Color as per the surrounding's matching with interior asthetics, approval by client before supply	2000		

RA-81	GROUP Videoconferencing System: Including the entire boardroom in your video conference calls with the GROUP Videoconferencing System. The system combines a speakerphone unit, a camera, a remote control, minimum two expandable mic and a hub for connecting all the components with the computer via USB 2.0. The camera included with this kit features sharp full-HD image. Logitech and equivalent	4		
RA-82	Interactive Whiteboard (for smart classroom) with professional stylus. For fixing below ultrashort throw projectors. The good quality of products and best service. Interactive whiteboard can be used in various applications such as, Education, Meetings, Conferences, Training, etc for multiple points touch bring multiple users to collaboration at the same time. Size 85inch, for rate contract so that if required at any point of time during contract execution then this can be supplied and fixed by the SI as per the conformation by the University, make: LG, ICT as per GEM, hitevision, and equivalent	1		
	TOTAL FOR SUB HEAD I			
	SUB-HEAD II (Comprehensive Maintenance + O&M)			
	3 rd year of CAMC: Comprehensive Maintenance + O&M of all the AV Systems BoQ items executed under the scope SUB HEAD I of this NIT installed in areas such as, but not limited, to the Class Rooms, Lecture Halls, Seminar Rooms, VC Room, Conference Rooms, Board Room, Meeting Rooms etc.; inclusive of all materials and spare parts, which are to be provided by the integrator/bidder free of cost for the following years after the Defects Liability Period as specified in the GCC of this NIT, inclusive of all integrator's resources such as trained manpower and operational personnels for all services including routine maintenance, preventive maintenance, breakdown maintenance, software/firmware upgrade, repair and replacement of defective or damaged or worn-out items for the specified years after the Defect liability period.			
OM. 1	1st Year After Defects Liability Period, i.e., 2 years' DLP + additional 1 year	1		
OM. 2	2nd Year After Defects Liability Period, i.e., 2 years' DLP + additional 2 years	1		
OM. 3	3rd Year After Defects Liability Period, i.e., 2 years' DLP + additional 3 years	1		
	TOTAL FOR SUB HEAD II			
	GRAND TOTAL IN INR (SUB HEAD I + SUB HEAD II)			

Total Amount (In Words) : _____

Note

1. Do not quote optional items against the requirement mentioned in this tender.
2. If there is a discrepancy between the unit price and total price THE UNIT PRICE shall prevail.
3. **The bidder must quote for all the items mentioned under Section IV – Schedule of Requirement. The lowest price criteria shall be applied on the total composite amount of all items taken together.**
4. **If the bidder quotes for partial items mentioned under Section IV – Schedule of Requirement, the bid shall be liable to be rejected.**

1. PERFORMA BID SECURITY DECLARATION Letter

[On the letterhead of the Organization]

We, the undersigned, declare that:

We, M/s..... (herein referred as bidder) understand that, according to bid clause and others applicable bids may be supported with a Bid Securing Declaration, therefore rather than submitting the Earnest Money Deposit, bidder render the declaration that in the **FORM I format given herein NIT**: Bidder will automatically be suspended from being eligible for bidding in any contract with NU (herein referred as Purchaser) for the period of 3 years, starting on bid submission closing date, if bidder are in breach of any of the following obligation(s) under the bid conditions:

If a Bidder withdraws the proposal or increases the quoted prices after opening of the Proposal and during the period of Bid validity period or its extended period, if any. In case of a successful Bidder, if the Bidder fails to sign the Agreement in accordance with the terms and conditions (including timelines for execution of the Agreement) of this tender or fails to furnish the Performance Bank Guarantee in accordance with the terms and conditions (including timelines for furnishing PBG) of this tender.

During the Bid process, if a Bidder indulges in any act as would jeopardize or unnecessarily delay the process of bid evaluation and finalization. Bidder understands that this declaration shall expire if Bidder are not the successful Bidder and on receipt of purchaser's notification of the award to another Bidder; or thirty days after the validity of the Bid; whichever is earlier.

(Signature) Authorized Signatory

Name: Designation: Office Seal: Place: Date:

3. PERFORMA OF PERFORMANCE BANK GUARANTEE

(on non-judicial paper of appropriate value)

Dated:

To,

The Registrar,

Nalanda University, Rajgir,

Bihar 803116

BANKS GUARANTEE No:

Dear Sir(s),

In consideration of the Nalanda University, Rajgir, Bihar (hereinafter called "NALANDA UNIVERSITY") having offered to accept the terms and conditions of the proposed agreement betweenand (hereinafter called "the said contractor(s)" for the work (hereinafter called "the said agreement") having agreed to production of an irrevocable Bank Guarantee for INR(INR.....only) as a security/guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.1. We (hereinafter referred to as the "Bank") hereby undertake to (indicate the name of the Bank) pay to the NALANDA UNIVERSITY an amount not exceeding INR.... (INR.....only) on demand by the NALANDA UNIVERSITY.

2. We(indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a demand from the NALANDA UNIVERSITY stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding INR (INR.....only).

3. We, the said Bank, further undertake to pay to the NALANDA UNIVERSITY any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any Court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under, and the contractor(s) shall have no claim against us for making such payment.

4. We (indicate the name of the Bank) further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement, and it shall continue to be enforceable till all the dues of the NALANDA UNIVERSITY under or by virtue of the said agreement have been fully paid, and its claims satisfied or discharged, or till the representative of NALANDA UNIVERSITY, on behalf of the Government, certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor(s), and accordingly discharges this guarantee.

5. We(indicate the name of the Bank) further agree with the NALANDA UNIVERSITY that it shall have the fullest liberty without our consent, and without effecting in any manner our obligations hereunder, to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by NALANDA UNIVERSITY against the said contractor(s), and to forbear or enforce any of the terms and conditions relating to the said agreement, and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said contractor(s) or for any forbearance, act of omission on the part

of the NALANDA UNIVERSITY or any indulgence by the NALANDA UNIVERSITY to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This Guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).

7. Welastly undertake not to revoke this Guarantee except with (indicate the name of the Bank) the previous consent of the NALANDA UNIVERSITY in writing.

8. This Guarantee shall be valid up tounless extended on demand by the NALANDA UNIVERSITY. Notwithstanding anything mentioned above, our liability against this Guarantee is restricted to Rs (Rupeesonly), and unless a claim in writing is lodged with us within six months of the date of expiry or extended date of expiry of this Guarantee all our liabilities under this Guarantee shall stand discharged.

Dated theday of..... For

Granted by the Bank

Yours faithfully....

4. MANUFACTURER AUTHORISATION FORMAT

(On manufacturer's letterhead)

Date:

To,
The Registrar,
Nalanda University, Rajgir,
Bihar 803116

Subject: Manufacturer authorisation towards tender no. _____ for supply, installation, commissioning and on-site support for IT equipment for setting up of NALANDA UNIVERSITY in Rajgir, Bihar.

Dear Sir,

We, M/s _____ (*Name of the manufacturer*) having registered office at _____ (*address of the manufacturer*) by virtue of being manufacturer for _____ (*Name of the product/s*), hereby authorise M/s _____ (*Name of the bidder*) having their office at _____ (*Address of bidder*) to submit quote, negotiate, supply, install and provide after sales support for our range of products quoted by them to meet the above mentioned tender requirements.

M/s _____ (*Name of the manufacturer*) within the scope of requirement as per the tender mentioned above through its authorised partner M/s _____ (*Name of the bidder*) shall provide support & product warranty services for a minimum period of Two years from the date of installation and commissioning.

The undersigned is authorised to issue such authorisation on behalf of M/s _____ (*Name of the manufacturer*).

For M/s _____ (*Name of the manufacturer*)

Signature & company seal

Name

Designation

Email

Mobile No.

The Notice Inviting Tender, general conditions, all the documents including additional conditions, specifications, drawings and minutes of pre-tender meeting, addendums and corrigendum, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.

Note : Integrity Agreement will be signed and sealed by the Authorized Representative of bidder as per the format of NIT on bidder's letter head initially. Formal agreement on stamp paper shall be signed between NU and the successful bidder only, at the time of Signing of agreement for the work.

INTEGRITY AGREEMENT

On account of the e-tendering process adopted by NU, the bidder does not sign any document physically and entire tender document is submitted online through digital signature. However, the bidder shall be required to physically submit a set of documents in the office of Registrar, NU. In order to maintain transparency and integrity in the process of awarding contract, it is essential for NU and bidders to agree and abide by certain principles and policies. NU and bidders agree to following:

- i) NU shall remain committed to follow the principles of transparency, equity and competitiveness in public procurement;
- ii) The Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the bidder shall sign the Integrity Agreement, which is an integral part of tender/tender documents, failing which the bidder will stand disqualified from the tendering process and the tender of the bidder shall be liable to be rejected summarily.
- iii) The bidders agree and acknowledge that the NIT is an invitation to offer made on the condition that the bidders shall sign an Integrity Agreement in the format as provided for in this document. Such Integrity Agreement shall form an integral part of the tender documents. Any failure on the part of any bidder to execute the Integrity Agreement shall render such bidder disqualified from the tendering process. The bidder agree and acknowledge that bidding for the Work as envisaged in this document shall be regarded as

an unconditional and absolute acceptance of the condition of executing the Integrity Agreement.

iv) The bidders acknowledge, agree and confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the Integrity Agreement shall be separate and distinct from the main agreement, which shall come into existence once tender is finally accepted by NU. The bidders acknowledge and accept the tenure of the Integrity Agreement, which shall be in the line with Article 1 of the format of Integrity Agreement as prescribed herein.

The bidders acknowledge that in the event of failure to sign and accept the Integrity Agreement, while submitting the tender/tender documents, NU shall have unqualified, absolute and unfettered right to disqualify the bidder and reject the tender in accordance with terms and conditions of the tender. In addition to other components of tender document, the Integrity Pact shall also be signed between The Registrar, NU and successful bidder after acceptance of tender.

To,

.....,

.....,

Sub: Notice Inviting Tender for Supply, Installation, Testing & Commissioning of Audio and Video System for remaining buildings at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar.

Dear Sir,

It is here by declared that the Nalanda University is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/tender documents, failing which the bidder will stand disqualified from the tendering process and the tender of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the NU.

Yours faithfully

Registrar, NU

(TO BE SUBMITTED ON BIDDERS LETTER HEAD)

INTEGRITY AGREEMENT

To,

The Registrar,

Nalanda University, Rajgir, Bihar

Sub: Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar.

Dear Sir,

I/We, -----(Name of The bidder)-----
-----, acknowledge that the Nalanda University is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/tender document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE TENDER SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender is finally accepted by NU. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/tender documents, NU shall have unqualified, absolute and unfettered right to disqualify the bidder and reject the tender in accordance with terms and conditions of the tender.

Yours faithfully

(Duly authorized signatory of the Bidder)

(To be signed by the bidder and the Registrar, NU)

INTEGRITY AGREEMENT

THIS INTEGRITY AGREEMENT is made at on this..... Day of2018

BETWEEN

The Vice Chancellor, Nalanda University represented through the Registrar, Nalanda University (hereinafter referred as "NU" or "Owner" which expression shall unless repugnant to the context or meaning thereof is deemed to include its successors & permitted assigns) of the FIRST PART:

AND

..... (Name
and Address of the Individual/firm/Company)
through..... (Hereinafter referred to
as the (Details of duly authorized signatory) "Bidder/Contractor" and which
expression shall unless repugnant to the meaning or context hereof include its
successors and permitted assigns) of the SECOND PART

Each of the NU/Owner and Bidder/Contractor individually referred to as the "Party" and collectively referred to as the "Parties".

Preamble

WHEREAS the Owner floated a tender for **Supply, Installation, Testing & Commissioning of Audio and Video System for Remaining Buildings at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar.** ("Tender") and intends to award, under laid down organizational procedure, contract for (Name of Work) hereinafter referred to "Contract".

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

AND WHEREAS to meet the purpose aforesaid, the Parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "Integrity Pact" or "Pact"), the terms and conditions of which shall also be read as integral part and parcel of the tender documents and Contract between the Parties.

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

Article 1: Commitment of the Owner

- 1) The Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - (a) No employee of the Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) The Owner will, during the tender process, treat all bidder(s) with equity and reason. The Owner will, in particular, before and during the tender process, provide to all bidder(s) the same information and will not provide to any bidder(s) confidential/additional information through which the bidder(s) could obtain an advantage in relation to the tender process or the Contract execution.
 - (c) The Owner shall Endeavour to exclude from the tender process any person, whose conduct in the past has involved any bias of any nature.
- 2) If the Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal Code (IPC) or Prevention of Corruption Act, 1988 or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Owner will be at liberty to take appropriate disciplinary action or initiate disciplinary proceedings as per its internal policies and procedures.

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

- 1) Each Bidder/Contractor shall be required to (including their respective officers, employees and agents) adhere to the highest ethical standards and shall report to the Owner of any suspected acts of fraud or corruption or coercion or collusion of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation and award of the Contract.
- 2) The Bidder(s)/Contractor(s) commit themselves to take all measures essential to prevent any act of corruption. The Bidders/Contractors commit themselves to observe the following principles during their participation in the Tender process and during the execution of the Contract:
 - a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the owner's employees involved in the Tender process or execution of the Contract, or to any third person any material or other benefit which such person is not legally entitled to, in order

to obtain in exchange any advantage of any kind whatsoever during the Tender Process or during the execution of the Contract.

b) The Bidder(s)/Contractor(s) shall not enter with other Bidder(s) in to any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of tenders or any other actions to restrict competitiveness or to cartelize in the tendering process.

c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant Indian Penal Code (IPC)/PC Act. Further the Bidder(s)/Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Owner as part of the business relationship regarding plans, technical proposals and business details, including information contained or transmitted electronically or otherwise.

d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly, Bidder(s)/Contractor(s) of Indian nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly can submit tender in the process of tender, but not both. In cases where an agent participates in the tender on behalf of one bidder, such agent shall not be permitted to quote on behalf of any another bidder along with the first manufacturer in a subsequent/parallel tender for the same item.

e) The Bidder(s)/Contractor(s) will, when presenting tender, disclose any and all payments made, is committed to make or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

3) The Bidder(s)/Contractor(s) will not instigate any third person to commit offences mentioned above or be an accessory to such offences.

4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means wilful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the interest of the Owner.

5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use coercive practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may

be fall upon a person, his/ her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

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

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

Article 4: Previous Transgression

- 1) The Bidder/Contractor declares that no previous transgressions occurred in the last five (5) years with any other company in any country confirming to the anti-corruption approach or with the Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify its exclusion from the process of Tender.

- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the process of Tender or action can be taken for banning of business dealings/holiday listing of the Bidder/Contractor as deemed fit by the Owner.
- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system the Owner may, at its sole discretion, revoke the exclusion prematurely.

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

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

Article 6- Duration of the Pact

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

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/determined by the Owner.

Article 7- Other Provisions

- 1) This Integrity Pact is subject to Indian laws and the place of performance and jurisdiction is the place of office of the Owner/NU who has floated the Tender.
- 2) Any change, amendment, modification or supplement or addendum to the Integrity Pact can only be brought into effect by way of mutual written agreement between the parties to the Integrity Pact.
- 3) If the Contractor is a partnership or a consortium, this Pact shall be

signed by all the partners or by one or more partners holding power of
Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at
the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

attorney signed by all partners and consortium members. In case the contractor is a company, the Pact must be signed by a representative duly authorized by board resolution of such company.

- 4) Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of the Integrity Pact remains valid. In this case, the Parties will strive to come to an agreement to their original intentions.
- 5) It is agreed term and conditions that any dispute or difference arising between the Parties with regard to the terms of this Integrity Agreement/ Pact, any action taken by the Owner in accordance with this Integrity Agreement / Pact or interpretation thereof shall not be subject to arbitration.

Article 8- LEGAL AND PRIOR RIGHTS

All rights and remedies of the Parties hereto shall be in addition to all the other legal rights and remedies belonging to such Parties under the contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact shall have precedence over the Tender/Contact documents with regard to any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the Parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses

.....

(For and on behalf of Owner)

.....

(For and on behalf of Bidder/Contractor)

WITNESSES (Signature, name and address)

1

2

Place:

Dated:

(To be executed by and between the Owner and the successful bidder)

FORMAT OF AGREEMENT

This agreement is executed at _____ (place of execution) on the _____ day of _____, 20____

BETWEEN

_____, which expression shall mean and include its successors and assigns (name and address of the Owner) ("Owner") of the FIRST PART
AND

_____,
(name and address of the successful bidder) ("Contractor") of the SECOND PART

The Owner and the Contractor shall be individually referred to as the "Party" and collectively referred to as the "Parties"

Whereas the Owner is desirous of **Supply, Installation, Testing & Commissioning of Audio and Video System for Remaining Building at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar** and had invited tenders by issuing Notice Inviting Tender ("Tender") for selection of a contractor for constructing the said campus. The Contractor has submitted its tender pursuant to the issuing of the Tender by the Owner. WHEREAS the details of the work proposed to be executed by the Contractor is more particularly specified in the **Tender for Supply, Installation, Testing & Commissioning of Audio and Video System for all the Remaining Buildings at the Permanent Campus of Nalanda University (NU), Nalanda, Rajgir, Bihar**, (name and identification number of Contract) ("Works") and the Owner has accepted the Tender submitted by the Contractor for the execution and completion of the Works and the remedying of any defects therein, _____ at _____ a _____ contract _____ price _____ of Rs.....
..... (Rupees _____(in words))

WHEREAS the Owner is now desirous of laying down the terms and conditions governing the execution of the Works and has therefore, requested the Contractor to execute the present Agreement.

NOW THIS AGREEMENT WITNESSETH as under:

Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

1. In this Agreement, words and expressions shall carry the same meanings as are ascribed to them in the Conditions of Contract as more particularly mentioned in the Tender. The Parties agree that the Tender shall form an integral part of this Agreement and shall be read and construed accordingly.

2. In consideration of the payments to be made by the Owner to the Contractor as the consideration for execution of the Works ("Consideration"), the Contractor hereby covenants with the Owner to execute and complete the Works and remedy the defects therein in conformity in all aspects with the provisions of the Tender and this Agreement.

3. The Owner hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and in the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Tender and this Agreement at the times and in the manner prescribed under the Tender.

4. The following documents shall be deemed to form and be read and construed as part of this Agreement:

- i) Letter of Acceptance;
- ii) Notice to proceed with the Works;
- iii) Contractor's Tender;
- iv) Contract Data;
- v) Conditions of Contract (including Special Conditions of Contract);
- vi) Specifications;
- vii) Drawings;
- viii) Bill of Quantities; and
- ix) Any other documents listed in the Contract Data as forming part of the Contract.

In witness whereof the Parties have caused this Agreement to be executed on the day and year first written above.

The _____ Common _____ Seal _____ of _____

_____ was hereunto affixed in the presence of:

Signed _____ Sealed _____ and _____ Delivered _____ by _____ the _____ said _____

Binding _____ Signature _____ of _____ Owner _____

Binding	Signature	of	Contractor
in	the	presence	of
<hr/>			
<hr/>			

FORM_A :_FINANCIAL_INFORMATION

Financial Analysis-Details to be furnished duly supported by figures in balance sheet/profit & loss account for the last **five (5)** years duly certified by the Chartered Accountant, as submitted by the bidder to the Income Tax Department (copies of all the documents to be attached).

S. No.	Description	Years				
		2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
i)	Gross Annual turnover					
ii)	Turnover on similar works					
iii)	Profit/Loss					

- i. Financial arrangements for carrying out the proposed work.
- ii. Solvency/Credit Facility Certificate from Bankers of bidder in the prescribed Form B

SIGNATURE OF BIDDER (S)

Signature of Chartered Accountant with Seal

FORM B

(FORM OF BANKER'S SOLVENCY/CREDIT FACILITY CERTIFICATE FROM A SCHEDULED BANK)

SOLVENCY CERTIFICATE/ CREDIT FACILITY CERTIFICATE

This is to certify that to the best of our knowledge and information that M/s. /Shri..... having marginally noted address, a customer of our bank are/is respectable and can be treated as good for any engagement up to a limit of Rs..... (Rupees.....).

This certificate has been issued at the specific request for limited purpose of submitting the Tender to the Nalanda University, Rajgir, Bihar and shall not be used for any other purpose whatsoever.

This certificate is issued without any guarantee or responsibility on the bank or any of our officers and employees.

(Signature)

For the Bank

GENERAL INSTRUCTIONS:

(1) Banker's Solvency/Credit facility Certificate must be on the letterhead of the bank issuing such certificate, sealed in a cover addressed to the Vice Chancellor, NU.

(2) In case the Solvency/Credit facility Certificate is issued at the request of a partnership firm, such certificate must include names of all partners as recorded with the Bank.

(3) The Solvency/Credit facility certificate of the scheduled bank in their own format will also be acceptable.

(4) The Solvency/Credit facility Certificate should be tender specific.

FORM C

DETAILS OF SIMILAR WORKS COMPLETED DURING THE LAST SEVEN YEARS ENDING PREVIOUS DAY OF LAST DATE OF SUBMISSION OF TENDER

A	B	C	D	E	F	G	H	I	J
Sr. No	Name of work/project and location	Owner or sponsoring organization	Cost of work in Crores of Rupees	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation / arbitration cases pending / in progress with details *	Name and address / telephone number of officer to whom reference may be made	Whether the work was done on back to back basis Yes/No
1									
2									
3									

*Indicate gross amount claimed and amount awarded by the Arbitrator.

SIGNATURE OF BIDDER (S)

FORM D (On letterhead of Bidder)

PERFORMANCE REPORT OF WORKS REFERRED TO IN 'FORM C'

1	Name of work/ Project & Location	
2	Agreement No.	
3	Estimated Cost	
4	Tendered Cost	
5	Date of Start	
6	Date of completion	
	(i) Stipulated Date of Completion	
	(ii) Actual Date of Completion	
7	(i) Whether case of levy of compensation for delay has been decided or not. (ii) If decide, amount of compensation levied for delayed completion, if any	Yes/No
8	Performance Report	
	1) Quality of Work	Outstanding/Very Good/Good/Poor
	2) Financial Soundness	Outstanding/Very Good/Good/Poor
	3) Technical Proficiency	Outstanding/Very Good/Good/Poor
	4) Resourcefulness	Outstanding/Very Good/Good/Poor
	5) General Behaviour	Outstanding/Very Good/Good/Poor
Dated:		Signed by authorized bidder
Stamp:		

Certified that the above information is complete and that the information furnished above is true, correct and not misleading to my/our knowledge and belief.

Note: The copy of purchase order and installation/completion certificate to attached with the technical bid.

FORM E

STRUCTURE & ORGANIZATION

1	Name & Address of the bidder	
2	Telephone No./Telex No./Fax No./e-mail address	
3	Legal status of the bidder (attach copies of original document defining the legal status).	
	a) An Individual	
	b) A Proprietary Firm	
	b) A firm in partnership	
	c) A limited company or Corporation	
4	Particulars of registration with various Government bodies (attach attested photo-copy). (Company Registration, PAN no., GST Registration, PF Registration, ESI Registration, Registration as a Contractor with CPWD/MES/State PWD etc. ant information about others)	
	ORGANIZATION/PLACE OF REGISTRATION	REGISTRATION No.
1	GST	
2	EPF	
3	ESI	
4	Add rows for other registrations.	

5	Names and Titles of Directors& Officers with designation to be deputed for the Works	
6	Designation of individuals authorized to act for the organization.	
7	Has the bidder or any constituent partner in case of partnership firm/Limited Company/Joint Venture, ever been convicted by a court of law? If so, give details.	
8	In which field of Mechanical Engineering the bidder has specialization and interest?	
9	Any other information considered necessary but not included above.	

Certified that the information mentioned above is complete and no information has been left undisclosed and that the information furnished above is true, correct and not misleading to my/our knowledge and belief.

SIGNATURE OF BIDDER (S)

FORM F

CRITERIA FOR ELIGIBILITY CRITERION EVALUATION OF CONTRACTORS

	Attribute s	M a x . M a r k s	Mar ks Obt aine d By the Bidd er on Self- Asse ssm ent	Evaluation Criteria *¹				Remarks
A	Financial strength	20		<i>(i) 60% marks for minimum eligibility criteria</i>				
A 1	Average annual turnover	16		<i>(ii) 100% marks for twice the minimum eligibility criteria or more</i>				
A 2	Solvency/Credit facility Certificate	4		<i>In between (i) & (ii) – on pro-rata basis</i>				
B	Experience of Work during last seven years.	20		<i>(i) 60% marks for minimum eligibility criteria (ii) 100% marks for twice the minimum eligibility criteria or more In between (i) & (ii) – on pro-rata basis</i>				
C	Performanc e on works (time over run)	20						
	Parameter -			SCORE				
	Calculation for Points		If TOR =	1	2.0	3.0	>3.5	Maximum Marks (20)
1	Without levy of compensatio n			20	15	10	10	

Tender Document for the Supply, Installation, Testing & Commissioning of Audio and Video System for remaining Buildings at the Permanent Campus of Nalanda University (NU), District Rajgir, Bihar.

2	With levy of compensation			NA	5	0	-5	
3	Levy of compensation not decided			NA	10	0	0	
	TOR (Time Over Run) = AT/ST, where AT=Actual Time; ST=Stipulated Time.							
D	Performance of works (Quality)	40		<i>Outstanding Quality 40 Marks Very Good Quality 30 Marks Good Quality 20 Marks Poor Quality 0 Marks The evaluation will be done by the expert committee/jury nominated by the Nalanda University for the purpose based on documents submitted and/or other means as decided by the committee/jury who may include visit of the site of project referred to by the bidder or any other project deemed fit by Engineer In Charge. The bidder must submit precise certificate given by the Owner/owner signed by an officer not below the rank of Executive Engineer or equivalent Preferably along with photographic evidence to support evaluation for this category, in case of absence of such document Zero (0) marks shall be awarded for the specific category of evaluation.</i>				
<p>To become eligible for short listing the bidder must secure at least 50% marks in each section A1, A2, A, B, C, and D and sixty percent marks in aggregate. The Institute reserves the right to restrict the list of qualified contractors to any number deemed suitable by it.</p> <p>*1- Precise certificate given by the Owner signed by an officer not below the rank of Executive Engineer or equivalent shall be furnished along with photographic evidence to support evaluation for this category, in case of absence of such document Zero (0) marks shall be awarded for the specific category of evaluation.</p>								

*1 – In place of a copy of bill/final bill, The Bidder can also submit a certificate by the Owner or his authorised representative, stating the quantity of works executed for each Work Specific items mentioned in qualifying criteria above, in support of his claim regarding his having executed the work specific items.

FORM G

GENERAL INSTRUCTIONS FOR THE AFFIDAVIT:

- The affidavit shall be executed on appropriate non-judicial **stamp paper** of minimum value as applicable in the State of Bihar and notarized by a Notary Public;
- Scanned copy of the affidavit shall be uploaded at the time of submission of the tender in soft copy.

AFFIDAVIT FOR SITE VISIT

I, _____, aged ____ years, son/daughter of _____, presently residing at _____ and authorized by _____ (name of bidder) ("Bidder") to solemn this affidavit on behalf of the Bidder, solemnly affirm on oath as hereunder:

1. The Bidder confirms that the Bidder has duly undertaken the visit of the proposed project site of Nalanda University, located at Rajgir, Bihar.
2. The Bidder has inspected and examined its surroundings and has satisfied itself about the site conditions and site logistics. The Bidder confirms that it is aware of the ground conditions and nature of the site, means of access to the site and the accommodation area required for establishing the labour camp. The Bidder agrees and confirms it shall be solely responsible for arranging and maintaining the afore-mentioned at its own cost including all materials, tools & plants, water, electricity, access, facilities for workers and all other services required for executing the Work unless otherwise specifically provided for in the contract documents.
3. The Bidder confirms and agrees that the submission of the tender implies that the requisite site visit has already been undertaken and that the Bidder has acquainted itself with the local conditions and other factors having a bearing on the execution of the Work.
4. Submitting this tender it will be presumed that the bidder is well acquainted with the actual site condition and participating in the bidding process on the same condition of the site.

DEPONENT

VERIFICATION

I, _____, aged ____ years, son/daughter of _____, presently residing at _____ and authorized by Bidder verify that the information mentioned above is true and correct to the best of my knowledge and belief.

DEPONENT

FORM H

GENERAL INSTRUCTIONS FOR THE AFFIDAVIT:

- The affidavit shall be executed on appropriate non-judicial **stamp paper** of minimum value as applicable in the State of Bihar and notarized by a Notary Public;
- Scanned copy of the affidavit shall be uploaded at the time of submission of the tender in soft copy.

AFFIDAVIT FOR NO BLACKLISTING/DEBARRMENT

1. I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither our firm M/s _____ has been blacklisted/debarred nor has abandoned any work in any government department, India nor any contract awarded to us for such works have been rescinded, during last five years prior to the date of this bid.
3. The undersigned hereby authorizes and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by the Department to verify this statement or regarding my (our) competence and general reputation.
4. The undersigned understand and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the Department Project implementing agency.

(Signed by an Authorized Officer of the Firm)

Title of Officer

Name of Firm

LAYOUT PLAN FOR ALL ROOM

(Please refer to the drawings attached/uploaded separately for the understanding on building layout /complexity and architecture).