

**REQUEST FOR PROPOSAL (RFP)**  
**FOR**  
**UPGRADATION OF 'CMET' FACILITY WITH**  
**AUGMENTATION OF**  
**TV STUDIO & PRODUCTION FACILITY**  
**FOR**  
**ACADEMIC PURPOSES**  
**AT**  
**AIIMS, NEW DELHI**

**Ref No. BECIL/PROJ./GM/VPS/CMET/AIIMS/2023-24**

**Dated: 14<sup>th</sup> July, 2023**



**Broadcast Engineering Consultants India Limited**

**(A Government of India Enterprise)**

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## DISCLAIMER

The information contained in this Request for Proposal document (the "RFP") or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of BECIL or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided. This RFP is not an agreement and is neither an offer nor invitation by BECIL to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in making their offers (Bids) pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by BECIL in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for BECIL, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. Each Bidder should, therefore, conduct its own investigations, actual site/ facilities/location inspections and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources. Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. BECIL accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein. BECIL, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in this Bid Stage. BECIL also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP. BECIL may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP. The issue of this RFP does not imply that BECIL is bound to select a Bidder or to appoint the Selected Bidder for the Project and BECIL reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever. The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by BECIL or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and BECIL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

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## A. RFP SCHEDULE AND CRITICAL DATES

The RFP tentative schedule and critical dates are shown below:

	<b>ACTIVITY</b>	<b>SCHEDULED DATE &amp; TIME</b>
1.	<b>RFP Issue to Prospective Bidders</b>	14 <sup>th</sup> July 2023
2.	<b>Pre Bid Meeting</b>	15:00 hours on 20 <sup>th</sup> July 2023
3.	<b>Venue for Pre Bid Meeting</b>	BECIL Bhawan, C-56 / A -17, Sector - 62, Noida - 201 307.
4.	<b>Date and Time for Submission of bids</b>	Upto 15:00 Hrs. on 4 <sup>th</sup> August 2023
5.	<b>Date and Time for Opening of Technical Bids</b>	Online on 16:00 Hrs. on 4 <sup>th</sup> August 2023
6.	<b>Availability of Document</b>	<a href="https://www.becil.com">https://www.becil.com</a> <a href="https://becil.euniwizarde.com">https://becil.euniwizarde.com</a>
7.	<b>E-tender Portal Fee (Non-refundable)</b>	INR 3,540/- <b>E-tender Portal Fee</b> (non-transferrable & non-refundable) payable through online e-Portal
8.	<b>RFP document Fee (Form Fee) (Non- Refundable)</b>	INR 5,900/- Form Fees (non-transferrable & non-refundable) payable through online e-Portal
9.	<b>Earnest Money Deposit (EMD Refundable)</b>	EMD amount of Rs. 5,00,000/- (Rupees Five lakhs only) to be submitted online through <a href="https://becil.euniwizard.com">https://becil.euniwizard.com</a>
8.	<b>Address for Communication of bids</b>	BECIL Bhawan, C-56 / A -17, Sector - 62, Noida - 201 307.
9.	<b>Evaluation of Technical bids</b>	To be intimated
10.	<b>Date and Time for Opening of Financial Bids</b>	To be intimated
11.	<b>Evaluation of Financial bids</b>	To be intimated
12.	<b>Award of Work Order</b>	To be intimated

Broadcast Engineering Consultants India Ltd. reserves the right to amend the RFP tentative schedule and critical dates.



The Tender documents can be downloaded from our website [www.becil.com](http://www.becil.com) and <https://www.becil.euniwizard.com>. Tender fee of Rs 5,900.00 as RFP document fees should be submitted online via e-Payment/NEFT/RTGS. The e-Payment/NEFT/RTGS transfer receipt should be submitted. **Proposals received without or with inadequate RFP Document fees shall be rejected.**

Bidders shall submit Earnest Money Deposit along with their Bids, EMD of INR 5,00,000/- (Five Lakh only), should be submitted online via NEFT / RTGS. The NEFT/RTGS transfer receipt should be submitted. Proposals received **without or with inadequate EMD amount shall be rejected.**

**Any exemption certificate shall not be entertained in connection with this bid.**

No interest shall be payable on Bid Security under any circumstance. Bidders can make the EMD payment through the online at <https://becil.euniwizard.com> site.

## **B. INSTRUCTIONS FOR E-TENDERING PORTAL OF BECIL**

### **I. E-TENDER PORTAL FEE**

The bidder has to pay a non-refundable **e-tender portal fee amounting to ₹ 3540/-** (Non-refundable) by way of on-line payment on e-tender portal before submission of the proposal.

### **II. SUBMISSION OF THE PROPOSAL**

The bidders are advised to study the RFP document carefully. Submission of proposals shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications. Bidders shall have to submit their proposal (Technical and Financial) online through the e-tendering website <https://becil.euniwizarde.com>.

## **E-TENDERING PROCEDURE**

1. E-Procurement is the complete process of e-tendering from publishing of tenders online, inviting online bids, evaluation and award of contract using the system. You may keep a watch of the tenders floated under <https://becil.euniwizarde.com>. These will be invited for online Bids. Bidder Enrolment can be done using "Bidder Enrolment".

2. The instructions given below are meant to assist the bidders in registering on the e-tender Portal, and submitting their bid online on <https://becil.euniwizarde.com> the e-tendering portal as per uploaded bid.

3. More information useful for submitting online bids on may be obtained at: <https://becil.euniwizarde.com>

#### **4. GUIDELINES FOR REGISTRATION ON PORTAL**

- a. Bidders are required to enroll on the e-Procurement Portal by clicking on the link “Online Bidder Enrolment” on the e-tender Portal by paying the **Registration fee of Rs. 2360/- (inclusive of taxes)**.
- b. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- c. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication with the bidders.
- d. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Only Class III Certificates with signing + encryption key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile. Or bidders can contact our help desk for getting the DSC.
- e. Only valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC’s to others which may lead to misuse.
- f. Bidder then logs in to the site through the secured log-in by entering their user ID /password and the password of the DSC / e-Token.
- g. The scanned copies of all original documents should be uploaded in pdf format on portal **<https://becil.euniwizarde.com>**.
- h. After completion of registration payment, bidders need to send their acknowledgement copy on our **help desk mail ID: helpdeskeuniwizarde@gmail.com** for activation of your account.

Helpdesk Number: Tel 011-4960606, 9355030616, 9560364871

#### **5. SEARCHING FOR TENDER DOCUMENTS ON PORTAL**

- a. There are various search options built in the e-tender Portal, to facilitate bidders to search active tenders by several parameters.
- b. Once the bidders have selected the tenders they are interested in, you can pay the form fee and processing fee (NOT REFUNDABLE) by net-banking / Debit / Credit card then you may download the required documents / tender schedules, Bid documents etc. Once you pay both fee tenders will be moved to the respective ‘requested’ Tab. This would enable the e- tender Portal to intimate the bidders through e-mail in case there is any corrigendum issued to the tender document.

## **6. PREPARATION OF BIDS ON PORTAL**

- a. Bidders should take into account any corrigendum published on the tender document before submitting their bids.
- b. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid.
- c. Bidders, in advance, should get ready the bid documents to be submitted as indicated in the tender document /schedule and generally, they can be in PDF formats. Bid Original documents may be scanned with 100 dpi with Color option which helps in reducing size of the scanned document.
- d. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GST, Annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Documents” available to them to upload such documents.
- e. These documents may be directly submitted from the “My Documents” area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

## **7. SUBMISSION OF BIDS ON PORTAL**

- a. Bidder should log into the website well in advance for the submission of the bid so that it gets uploaded well in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- b. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document as a token of acceptance of the terms and conditions laid down by BECIL.
- c. Bidder has to select the payment option as “e-payment” to pay the tender fee / EMD as applicable and enter details of the instrument.
- d. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the white colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.

e. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

f. The uploaded tender documents become readable only after the tender opening by the authorized bid openers. Upon the successful and timely submission of bid click "Complete" (i.e. after Clicking "Submit" in the portal), the portal will give a successful Tender submission acknowledgement & a bid summary will be displayed with the unique id and date & time of submission of the bid with all other relevant details. The tender summary has to be printed and kept as an acknowledgement of the submission of the tender. This acknowledgement may be used as an entry pass for any bid opening meetings.

## **8. CLARIFICATION**

For any clarification related to using the portal, you may visit the below link:

<https://becil.euniwizarde.com>

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

b. Any queries relating to the process of online bid submission or queries relating to e-tender Portal in general may be directed to the Helpdesk Support.

c. Please feel free to contact euniwizard helpdesk (as given below) for any query related to

**E-tendering Phone No. 011-49606060**

**Mail id: - [helpdeskeuniwizarde@gmail.com](mailto:helpdeskeuniwizarde@gmail.com)**



## **ABOUT AIIMS**

All-India Institute of Medical Sciences was established as an institution of national importance by an Act of Parliament with the objects to develop patterns of teaching in Undergraduate and Post-graduate Medical Education in all its branches so as to demonstrate a high standard of Medical Education in India; to bring together in one place educational facilities of the highest order for the training of personnel in all important branches of health activity; and to attain self-sufficiency in Post-graduate Medical Education.

The Institute has comprehensive facilities for teaching, research and patient-care. As provided in the Act, AIIMS conducts teaching programs in medical and para-medical courses both at undergraduate and postgraduate levels and awards its own degrees. Teaching and research are conducted in 42 disciplines. In the field of medical research AIIMS is the lead, having more than 600 research publications by its faculty and researchers in a year. AIIMS also runs a College of Nursing and trains students for B.Sc. (Hons.) Nursing post-certificate) degrees.

## B. INTENT OF THE REQUEST FOR PROPOSAL

All-India Institute of Medical Sciences (AIIMS), Ansari Nagar, New Delhi intends to Upgrade its CMET facility with Augmentation of TV Studio & Production facility for Academic purposes on turnkey basis.

Broadcast Engineering Consultants India Limited (BECIL) has been engaged by the All-India Institute of Medical Sciences (AIIMS), Ansari Nagar, New Delhi as Turnkey Solution partner for **“Up-gradation of CMET facility with Augmentation of TV Studio & Production facility for Academic purposes”**. The facility is proposed to be used for production of programs and events dedicated to the important functions of AIIMS and for education purpose also.

Bidders are required to quote their best possible prices with special discount as setup is for the supreme healthcare division of the country.

Training is to be imparted to the technical staff of AIIMS for functioning and operationalization of setup.

## C. PRE-BID MEETING

BECIL will host a Pre-Bid Meeting on **15:00 hours on 20<sup>th</sup> July 2023** at the following venue: -

**Broadcast Engineering Consultants India Ltd.**  
**BECIL BHAWAN,**  
C - 56, A/17, Sector - 62,  
Noida - 201307  
Tele phone - 0120-4177850

The purpose of the meeting is to provide bidders with information regarding the RFP and the Project requirements, and to provide each bidder with any opportunity to seek clarifications regarding any aspect of the RFP and the Project. However, BECIL reserves the right to hold the pre-bid meeting and respond to any query or clarification in part or full.

Intended bidders can send their queries on or before **48 hours** of pre bid meeting date i.e. **15:00 hours on 18<sup>th</sup> July 2023** via email to [vpsingh@becil.com](mailto:vpsingh@becil.com).

## D. PROCEDURE TERMS AND GENERAL CONDITIONS

1. The proposal is to be submitted in TWO BID SYSTEM with separate Technical and Financial sections of e-tender.
2. All bids are to remain valid for six months from the date of opening of financial bid.
3. BECIL reserves the right to solicit additional information from Bidders to evaluate which bid best meets the need of the Project. Additional information may include, but is not limited to, past performance records, lists of available items of work will be done simultaneously with the project, on-site visit and evaluations by BECIL personnel, or any other pertinent information. It will be vender's responsibility to check for updated information on website <https://becil.euniwizarde.com> & <https://becil.com>
4. BECIL will make its decision based on the ability of the Bidder(s) to meet our specific needs, technical expertise of the Bidder(s), delivery capabilities, customer references, past satisfactory performance experience, is must besides cost.
5. BECIL reserves the right to waive off any deviations, accept the whole or part thereof or reject any or all bids and to select the Bidder(s) which, in the sole opinion of the Project in charge, best meets the project's interest. BECIL also reserves the right to negotiate with potential bidders so that its best interest to fulfill the need of project is served.
6. BECIL reserves the right to reject any and all proposals, to negotiate all terms of any agreement resulting from this request for proposal, and to request additional information from vendors.
7. **Site visit is mandatory. The bidder must visit the site to observe the conditions of the place where project need to be executed. No extra claim on consequences of ignorance on ground of insufficient descriptions will not be allowed at the later date. Bidder should inform BECIL about the site visit at least one day in**

**advance. Site visit certificate must be included alongwith the bid. Site visit certificate must be attached with the bid otherwise bid will stand rejected.**

8. Dismantling is in the scope of the Contractor. The contractor should place the material at the designated place as per the instruction of end – client (AIIMS).
9. All information contained in this RFP, or provided in subsequent discussions or disclosures, is proprietary and confidential. No information may be shared with any other organization, including potential sub-contractors, without prior written consent of the RFP Coordinator.
10. In case Company goes into liquidation or change in business/management, it will be intimated to BECIL & company will fulfill its commitment in case order is awarded to them.

**11. Indemnification:**

Bidder agrees to indemnify BECIL from any and all claims, demands, losses, cause of action, damage, lawsuits, judgments, including attorneys' fees and costs, arising out of or relating to the execution of contract.

**12. Arbitration:**

Any dispute or difference or claim arising out of or in relation to this contract, including the construction, validity, performance or breach thereof, shall be settled or decided by arbitration to be conducted by CMD, BECIL or by any other person to be nominated by CMD, BECIL. Arbitration shall be conducted as per Arbitration & Conciliation Act, 1996. The seat of the arbitration shall be at New Delhi.

**13. Jurisdiction**

This Agreement shall be construed, interpreted and applied in accordance with, and shall be governed by, the laws applicable in India. The courts at Delhi shall have the

exclusive jurisdiction to entertain any matter arising out of or in relation to this Agreement.

## **E. ELIGIBILITY CRITERIA**

1. Bidder must quote for all the items otherwise the bid will be rejected.
2. The Bid can be submitted by an individual organization only. No Joint Venture or Consortium is allowed.
3. The bidder should have past experience of at least Ten (10) years in broadcasting field of similar type of works i.e. Up-gradation of Video Studio, Video Server, must be in Government department before the date of issue of this RFP. Documentary proof such as copy of Purchase order / completion certificate for the work executed of similar type in past three year of completion not less than Rs. 5 Crores must be submitted.
4. Supply, Installation, Testing and Commissioning of Broadcast Studio / Digital classroom / Smart Classroom & Associated Works and Services or similar project for Ministry / Department of Government of India / State Governments / PSUs/ Educational Institutions  
One similar project not less than the amount equal to Rs.5 Cr.  
or  
Two similar project not less than the amount equal to Rs. 3.5 Cr.  
or  
Three similar project not less than the amount equal to Rs. 2.5 Cr.
5. The bidder should be registered under Indian Company Act 1956. A copy of registration certificate should be submitted. Company Profile, Memorandum & Articles of Association, Copy of Certificate of Incorporation should be provided.
6. The bidder is required to submit following documents:
  - a) Copy of PAN No.
  - b) Copy of GST No.
  - c) ISO 9001:2015,And in case any document is not submitted, bid shall stand rejected.
7. The average annual turnover of the bidder should be Rs. 20 Crore or higher for the last three financial years i.e. 2019-20 and 2020-21 and 2021-22. The bidder should have positive net- worth. Certificate from the CA/CS. The Bidder should provide audited balance sheet with Annexure for last three financial Years.

8. The agency must not have been blacklisted / debarred by any Government / Semi Government Organization or Corporation in India at any stage in last five years. The firm is required to submit declaration in this respect. Litigation, if any, must be submitted with this bid.
9. The bidder must provide a list of clients/customers with contact details such as postal where services have been provided.
10. In case any of the documents furnished or undertaking given by the Bidders turns out to be false, the bid document shall be rejected and shall remain confiscated by BECIL. Suitable action as per the rules/laws of company and law of the country shall be involved against the Bidder.
11. Letter of Authorization from OEM to quote against the **RFP enquiry no. BECIL/PROJ./GM/VPS/CMET/AIIMS/2023-24, dated 14<sup>th</sup> July 2023**, enlisting after sales support after project execution is essential. The details have been given in the technical section separately.
12. The bidder should submit the compliance statement duly signed by OEM on OEM Letter Head.
13. A separate point by point compliance statement duly signed by bidder in respect to all points laid down in the specifications for all the equipment/item(s) must be submitted.
14. The bidder is required to submit the specification and solution as per the requirement spelled out in RFP. The solution will be used for assessment of understanding of the concept by bidder. The offered solution should be specific to requirement.
15. **The agency/bidder shall be asked to make a presentation before the evaluation committee. The Presentation will form a part of Evaluation criteria.**

16. The details as per the proforma attached at **Section III** respectively shall be furnished and included as part of the technical bid.
17. Copy of the RFP document duly signed and stamped by the bidder in support of having read, understood and complied with the requirements of the tender document. All pages of the technical proposal shall bear the initials of authorized signatory.

## **F. PRELIMINARY EVALUATION**

- (i) BECIL shall evaluate the proposals to determine that they are complete, technically complying, no computational errors have been made, required documents as mentioned in the RFP have been furnished, the documents have been properly signed and the response is generally in order.
- (ii) BECIL may waive any minor infirmity or non-conformity or irregularity in the proposal which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any bidder.
- (iii) In case only one bid is received or during the Technical Evaluation only one bidder qualifies for the next stage of the bidding process BECIL reserves the right to accept/reject the bid.

## G. MARKING MATRIX

In the below table, marking parameters for technical evaluation are mentioned under Quality Cost Based System (QCBS)

S. No.	Marking Parameters	Marking Scheme	Maximum Marks	Document required
1	Turnover	1) Rs.20 Cr and <Rs. 30 Cr = 10 Marks 2) Rs.30 Cr and <Rs. 40 Cr = 15 Marks 3) >Rs.40 Cr = 25 Marks	25	Certificate from the CA/CS.
2	Key certificates	<ul style="list-style-type: none"> <li>• CMMI level - 3 (Process Improvement)</li> <li>• ISO 20000-1 (support &amp; delivery of IT)</li> <li>• ISO 27001 (Security)</li> <li>• ISO 14001 (IT &amp; ITES)</li> <li>• ISO 9001</li> </ul> Each valid certificate carry 1 marks	5	Copy of Valid Certificate



S. No.	Marking Parameters	Marking Scheme	Maximum Marks	Document required
4	The bidder shall be in IT / ITES/ broadcast business for the last 5 years and shall have at least 10 years of experience as on as on the date of floating of tender  * Minimum project value considered for evaluation should be more than 5 crores.	10 Years of experience = 10 Marks 12 Years of experience = 15 Marks 15 Years or more of experience = 20 Marks	20	
5	Technical Presentation		50	
<b>Total Technical Marks</b>			<b>100</b>	

**Note: - The minimum Qualifying marks will be 80 out of 100.**

## **H. CRITERION FOR EVALUATION OF BID RESPONSE:**

- (i) The proposal is to be in TWO BID SYSTEM with separate Technical and Financial bid.
- (ii) Only Technically Qualified bidder are called for Presentation.
- (iii) Financial bid shall be opened of only that bidders who has found to be technically eligible based on marking matrix criteria. The minimum Qualifying marks will be 80 out of 100.
- (iv) The evaluation of the tenders will be made first on the basis of technical information furnished and then on the basis of Technical Presentation.
- (v) The Commercial bids of only such firms found valid based on technical parameters will be opened on a date to be communicated to bidders who have qualified in the technical bid stage.

(vi) The reasons for selection or rejection of a particular response will not be disclosed. The award of order will be further subject to any specific terms and conditions of the contract given in this section.

(vii) The agency/bidder that are considered technically qualified by TEC shall make a presentation before the evaluation committee. **The Presentation will form a part of Evaluation Criteria. The bid shall be rejected by Tender Evaluation Committee (TEC), if presentation is not found as per the tender requirement.**

**(viii) Evaluation of financial bids:**

- Bidders are requested to note that they should necessarily submit their financial bids in the format provided in e-tender website i.e. <https://becil.euniwizarde.com> and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the white colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.
- The Financial bid shall be opened of only that bidder who has found to be technically eligible. BECIL shall inform the date, and time for opening of financial bid.
- Financial bid will be inspected to ensure conformance to the format provided in the tender document.
- Arithmetical errors shall be rectified on the following basis. If there is a discrepancy between amount quoted in words and figures, the amount in words shall be taken for evaluation.

**(ix) Final Proposal shall be given scoring as below:**

a) Normalization factor ( $N_1$ ) to obtain the Normalized Technical score of the bidders shall be calculated as below: -

$$N_1 = T/T_h$$

Where:  $N_1$  = Normalization factor for calculation of Technical score.  
 $T$  = Technical Marks obtained by the bidder under consideration as per marking scheme  
 $T_h$  = Highest Technical Score obtained by any bidder

- b) Normalized technical score for the Bidder under consideration will be calculated using the following relation:

$$T_n = (N_1) * (\text{Weightage of the Technical Score i.e. } 70)$$

Where

$T_n$  = Normalized technical score for the Bidder under consideration

- c) Normalization factor ( $N_2$ ) to obtain the Normalized Financial Score of the other bidders shall be calculated as below: -

$$N_2 = F_L / F$$

Where:

$N_2$  = Normalization factor for calculation of Financial score.

$F$  = the quoted price of Financial Proposal under consideration

$F_L$  = the price of lowest priced Financial Proposal

- d) Normalized financial score for the Bidder under consideration will be calculated using the following relation:

$$F_n = (N_2) * (\text{Weightage of the Financial Score i.e. } 30)$$

Where

$F_n$  = Normalized Financial score for the Bidder under consideration

### **(x) Combined QCBS Evaluation**

The score of technical proposal including presentation would be given 70% weightage, and the financial proposal would be given 30% weightage. The weighted combined score of the Technical bid including presentation ( $T_n$ ), and Financial proposals ( $F_n$ ) shall be used to rank the bidders on the basis of formula given as below:

Combined Score = Normalized Technical Score ( $T_n$ ) + Normalized Financial Score ( $F_n$ )  
Bidder with highest Combined Score shall be declared selected Bidder.

**In the event that two or more Bidders/organizations with same final score, the Bidder with more marks in technical evaluation shall be selected.**

## I. COMMERCIAL TERMS AND CONDITIONS

Each bidder is required to accept the following terms and conditions:-

1.	<b>Prices</b>	:	<p>The Prices should be quoted in Indian Rupees only and prices should be FOR site at <b>AIIMS, Ansari Nagar New Delhi.</b></p> <p>The prices should be quoted exclusive of taxes and all applicable taxes should strictly be mentioned as per format given in Table 1 at Point I of Section I of this RFP.</p> <p>In case, taxes are not mentioned in Financial bid, prices shall be considered inclusive of taxes.</p>
2.	<b>Payment Terms for INR</b>	:	<p>(i) 20% payment of total order value shall be given as mobilization Advance after release of order against matching Bank Guarantee. The Bank Guarantee shall be in favor of <b>“Broadcast Engineering Consultants India Limited”</b> payable at <b>NEW DELHI - 11000.</b></p> <p>(ii) 50 % payment of the total order value shall be released on delivery of material at site.</p> <p>(iii) 20% payment of the total order value shall be released after Installation, Testing and Commissioning of equipment at site on <b>satisfactory certification by Project Manager, BECIL.</b></p> <p>(iv) 10% payment of total order value shall be made against submission of the <b>PBG</b> (as mentioned in clause 10 of Commercial Terms and Conditions) in favor of <b>Broadcast Engineering Consultants India Limited</b> payable at <b>NEW</b></p>

			<p><b>DELHI - 110001</b> after completion of work, duly certified by BECIL/AIIMS, and valid for entire Guarantee/Warranty period.</p> <p>(v) GST amount would be on hold and released against submission of undertaking regarding payment of GST/ Filing of GST Return (as per Appendix-A), copy of challan/tax deposit slip and copy of GSTR3B.</p> <p>(vi) The Payment shall be released on back -to-back basis (i.e. on release of payment from client to BECIL and subsequently BECIL will release payment to vendor.</p>
3.	<b>Consignee</b>	:	The equipment/products should be consigned to <b>AIIMS, Ansari Nagar, New Delhi</b> C/o Project Manager, BECIL.
4.	<b>Invoice</b>	:	Tax invoice should be raised in the name of <b>Broadcast Engineering Consultants India Limited, Delhi.</b>
5.	<b>Delivery schedule and Commissioning</b>	:	<ol style="list-style-type: none"> <li>1. The equipment/product should be delivered at site <b>within 6 - 8 weeks</b> from the date of issue of order.</li> <li>2. Installation, Testing, Commissioning and training of staff should be completed within <b>6 weeks</b> of delivery of material at site.</li> <li>3. Partial shipment is allowed.</li> </ol>
6.	<b>Packing</b>	:	The material should be securely packed to withstand transit hazards during different modes of transportation.

7.	<b>Guarantee/Warranty</b>	:	<p>a. All equipment and work shall be under Standard warranty for a period of one year from date of commissioning of project.</p> <p>b. <i>Bidder must also quote for CAMC of each part for a period of 5 years after completion of Standard Warranty/Guarantee period of 3 years. However, CAMC will be considered as optional item.</i></p> <p>c. Bidder must also provide a certificate from OEM for After Sales support and Component availability during a period of 5 years.</p>
10.	<b>Performance Bank Guarantee</b>	:	<p>(i) The successful bidder shall have to furnish a Performance bank guarantee (PBG) in favor of Broadcast Engineering Consultants India Ltd, 14-B, Ring Road IP Estate, New Delhi - 110002 for an amount equal to 10% of order value and valid till the period of warranty/guarantee period.</p> <p>(ii) The PBG is to be valid for the entire defect liability period.</p> <p>(iii) No interest is payable on PBG.</p> <p>(iv) PBG will be realized by BECIL in case of termination of the contract for un-satisfactory performance and/or non-performance of the contract</p>
11.	<b>Authorization</b>	:	An Authorization Letter from OEM should be submitted.
12.	<b>Technical Manual</b>	:	Two print copies of Technical Manual / Operation Manual and one CD version of the same have to be supplied with the equipment. One set of test certificate of each equipment has to be enclosed with shipment and one copy sent to BECIL.

			All software in original with perpetual license certificate has to be provided wherever possible.
13.	<b>Late Delivery</b>	:	In case of late delivery of equipment/product, the supplier shall be liable to pay penalty @ 0.5 % of the item cost delivered late per week of delay or a part thereof, upto a maximum amount of 5% of the delayed equipment/product, after which the order is liable to be cancelled.
14.	<b>Penalty Clause</b>	:	In case the equipment/product supplied is not as per RFP, the contractor will have to pay a penalty @5% of total value of product/equipment.
15.	<b>Taxes</b>	:	(i) TDS as applicable will be deducted from the bills. (ii) GST amount claimed by the agency in the invoices will be on hold till the same reflects in the GST portal. The amount will be processed after the submission of undertaking by the agency including proof of payment/challan and GSTR-3B. <i>Format of undertaking is enclosed at Appendix - A</i>
16.	<b>Compliance Statement</b>	:	A point by point full compliance statement in respect to all parameters related to the concerned equipment/items from the respective principle manufacturers should be submitted in the prescribed format given at Table 2.
17.	<b>Site Visit</b>	:	<b>Site visit is mandatory.</b> The bidder must visit the site to observe the conditions of the place where project need to be executed. <b>No extra claim on consequences of ignorance on ground of insufficient descriptions will not be allowed at the</b>

			<b>later date.</b> Bidder should inform BECIL about the site visit at least one day in advance. <b>Site visit certificate must be attached with the bid otherwise bid will stand rejected.</b>
18.	<b>Dismantling</b>	:	Dismantling is in the scope of the Contractor. The contractor should place the material at the designated place as per the instruction of end - client (AIIMS)

**TABLE-1**

S. No.	Description	Make/ Model	Qty	Unit Price In INR	Total Price In INR	Taxes	Final Price in INR including Taxes
<b>GRAND TOTAL</b>							

**Table 2**

**COMPLIANCE STATEMENT PERFORMA**

Sr. No.	Sr. No. of Specification	Description of Specification	Compliance (Yes/No)	Deviation, if any, to the specification	Optional Items , if any, required for the completeness of system
1					
2					
3					



## **J. PROPOSAL RESPONSE FORMAT**

All the bidders are requested to use the same or similar format as given below while submitting the commercial bids. The proposal must be submitted strictly in the following fashion as in Table 1 of Point I of section - I of this RFP.

1. Proposals are to be prepared on standard A4 size paper. Manuals and other reference documentation may be bound separately. All responses, as well as any reference materials presented must be written in English.
2. Figures and tables must be numbered and referenced in the text by that number. They should be placed as close to possible to the referencing text. Pages must be numbered consecutively within each section of the proposal showing proposal section and page number.
3. The RFP includes official response to pre-proposal conference questions, addenda, and any other material published by the BECIL pursuant the RFP. The bidder is to disregard any previous draft materials and any oral representations it may have received. All responses to the requirements in Sections (list appropriate section) of this RFP must clearly state whether the proposal will satisfy the referenced requirements, and the manner in which the requirement will be satisfied.
4. Copy of the tender document duly signed and stamped by the bidder in support of having read, understood and complied with the requirements of the tender document.

## **K. WARRANTY / GUARANTEE**

Apart from the standard product guarantee / warrantee offered for individual pieces or sets of equipment (e.g. replacements for defective supplies, conformance to specifications provided in documentation etc.) vendors must provide details of the nature of guarantee for deliverables of the complete system that they are willing to commit. Guarantee with respect to the installation defects will also be applicable for the same period of time.

## **L. ADDITIONAL INFORMATION**

Vendors should provide the following additional information.

- a. A copy of the latest / last annual report of the company and wherever applicable of the key principals. This is required, amongst other things, to understand the financial strengths, growth rate etc. of vendors.
- b. List with details (including name of client / TV channel) of similar work executed in India and abroad.
- c. Particulars of the partners or related / inter-linked company in India for sales, installation / commissioning and support (for principals/OEM) OR, principals with whom you have a tie-up (in the case of integrators).
- d. Any other detailed information of relevance (such as market shares etc.) with supporting documents or references.

## **M. BECIL OBLIGATIONS**

BECIL reserves the right to accept any bid, reject any or all bids and to annul the bidding process at any time prior to the award of the contract without thereby incurring any liability to the affected bidder/bidders or any obligations to inform to the affected bidder/bidders of the grounds for BECIL's action.

## SECTION II

# TECHNICAL REQUIREMENT

### CONTENTS

**A. BILL OF MATERIAL**

**B. TECHNICAL SPECIFICATIONS**

## A. BILL OF MATERIAL (BOM)

### Up-gradation of CMET facility with Augmentation of TV Studio & Production Facility for Academic Purposes

#### 1. Technology Hall Video Production Studio

S. No	Item Description	Qty (Nos.)	Make
1	Software based production and streaming system with redundant power supply with control unit	1	Newtek Tricaster/Rackeen
2	32 Inches Full HD LED monitors for interface and multi view	2	Panasonic Or Equivalent
	27 Inches Full HD LED monitors	1	Panasonic Or Equivalent
3	42 inches full HD TV monitor (one on wheel stand for Studio, other for control room)	3	Panasonic Or Equivalent
4	Broadcast grade monitor	1	BMD/Data Video/ Osee
5	Desktop Computer	2	HP / Dell
6	17 inches Laptop Computer	2	HP / Dell/Asus
7	4K PTZ camera (Ethernet based) NDI enable with remote control - 10x Optical zoom	3	Sony/ Panasonic
8	4K PTZ camera (Ethernet based) NDI enable with remote control - 24 x Optical zoom	3	Sony/ Panasonic
9	PTZ control unit	1	Sony/ Panasonic
10	Standard Video Camera Stands with wheels for 5Kg camera	6	Miliboo or Equivalent
11	NAS 4 bay, 16 TB x 4 Drive, 4 GB RAM	2	Rocstor/Infotrend/ Synology
12	External SSD 512 GB	8	Crucial
13	HDMI Splitter	2	Aten/ Extron/ Crestron
14	Microphone: Wired table-top (XLR)	10	Sennheiser/ Shure/ AKG

15	Microphone: Wired lapel (XLR)	6	Sennheiser/ Shure/ AKG
16	Microphone: handheld cordless (XLR)	2	Sennheiser/ Shure/ AKG
17	Microphone: Lapel cordless (XLR)	2	Sennheiser/ Shure/ AKG
18	Sound Mixer: 12 input, USB Output	1	Yamaha / Allen Heath/SoundCraft
19	LED Lights Sets with installation (having 12-16 lights)	16	Leska/ Canara/Shenoy
20	ChromaKey Green Screen 10x15 feet with stand	1	Leska/ Canara/Shenoy
21	Headset - Earphone	4	AKG/ Beyerdynamic/ yamaha
22	Active speakers: Set of 2 For Studio/ Control room	4	M-Audio/ Genlec/ Alesis/JBL/Yamaha
23	Headset - Cordless for Studio floor manager (1 is to 3) (Eartec type)	1	Eartec or Equivalent
24	24 Port Manageable PoE+ Ethernet Switch	2	Netgear/ Cisco
25	UPS Power Supply 30 minute power backup 10KVA	1	APC/Vertiv
26	Equipment Racks	10	APC/ APW/ Rittal/ Comrack
27	Furniture/ Storage/ Set Material	1	Standard/ Customized
28	Emergency Light	2	Standard
29	Ethernet Connection/ Electric/ Video/ Audio wiring/connectors and installation	1	Reputed Make
30	Brick work/ wood work/ Acoustic/ AC Duct Modification	1	Customized

## 2. Video Lecture/Online meeting studio/ editing Rooms - 4

S.No	Item Description	Qty	Approved Make
1	24 inches AIO Desktop Computer	8	Dell/ HP
2	27 inches full HD TV monitor	5	Panasonic Or Equivalent
3	Webcam Full HD Logitech	7	Logitech or Equivalent
4	Microphone: Wired (USB )	6	Beyerdynamic/ Sennheiser
5	Microphone: Wired Lapel (Analog Output)	4	AKG/ Sennheiser
6	Sound Mixer: 4 input, USB Output	4	Yamaha/ Allen Heath/ Soundcraft
7	LED Lights Sets 4 Light in each studio	4	Leska/ Canara/Shenoy
8	Chroma key Green Screen	4	Leska/ Canara/Shenoy
9	Headset - Earphone	8	AKG/ Beyerdynamic/ yamaha
10	Electronics Portable Vocal Booth Reflection Filter	4	Onstage or Equivalent
11	Active speakers: Set of 2 For Studio	4	M-Audio/ Genlec / Alesis/JBL/Yamaha
12	External Hard Disk 2TB	12	Crucial / WD
13	Ethernet Connection Installation	12	Standard
14	UPS Power Supply 30 minute power backup 10KVA	1	APC/Vertiv
15	Brick work/ wood work/ Acoustic/ AC Duct Modification	1	Customized

### 3. DSLR Camera Mobile Unit: 2 Sets

S. No	Item Description	Qty	Approved Make
1	Full frame 24 MegaPixel 4K60p Digital Camera	2	Nikon/ Canon
2	Z 24-200MM Full frame lens	1	Nikon/ Canon
3	Z 50MM 1.8 Full frame lens	1	Nikon /Canon
4	64 GB Ultra SD Cards, 95mb/s or better	10	Sandisk/ WD
5	Filter set UV/IR/HPF	2	Reputed Make
6	Camera Stand with accessory to operate zoom, focus etc (10 kg weight)	2	Miliboo Or Equivalent
7	Microphone: Set of two cordless microphone with common receiver	2	Sennheiser / Havana Audio
8	Microphone: Wired lapel 3.5mm TRS jack	2	Sennheiser / Audio Technica/JBL
9	Microphone: video micorphone 3.5mm jack - on camera	2	Rode/ Shure
10	Headset - Earphone	2	Beyerdynamic/ Sennheiser/ Yamaha
11	Set of three portable LED lights	2	Leska/ Canara/Shenoy/
12	Battery operated light	2	Leska/ Canara/Shenoy/
13	Electronic Gimbal	2	Zhiyun or Equivalent
14	Charger and 4 Extra Battery	1 Set	Standard
15	Reflector Set with Stand	1	Leska/ Canara/Shenoy

#### 4. Video Camera Mobile Unit: Number 2

SNo	Item Description	Qty	Approved Make
1	Video Camera: 4K resolution, Single Chip 1" CMOS sensor, 10X or more optical zoom	2	Sony/ Panasonic
2	Camera Stand with fluid head for 10 Kg weight	2	Miliboo Or Equivalent
3	Microphone: Set of two cordless microphone with common receiver	2	Sennheiser/ Rode
4	Headset - Earphone	2	Beyerdynamic/ Sennheiser/ Yamaha
5	Set of three portable LED lights	2	Leska/ Canara/Shenoy
6	Battery operated light	2	Leska/ Canara/Shenoy
7	Charger and 4 Extra Battery	1	Standard
8	64 GB Ultra SD Cards, 95mb/s or better	10	Sandisk / WD
9	Reflector Set with Stand	1	Leska/ Canara/Shenoy

#### 5. Directors Board Room

S. No	Item Description	Qty	Approved Make
1	Full HD PTZ camera (Ethernet based) NDI enable with remote controls - 10x Optical zoom	3	Sony/ Panasonic
2	PTZ Control Unit	1	Sony/ Panasonic
3	Control Unit for PTZ Camera (Ethernet Based) NDI enabled	1	Sony/ Panasonic
4	8 Port Manageable PoE+ Ethernet Switch	2	Netgear/ Cisco
5	Sound Mixer: 4 input, USB Output	1	Yamaha/ Allen Heath/ Soundcraft



6	LED Lights Sets 4 Light in each studio	6	Leska/ Canara/Shenoy
7	4K Laser projector	1	Christie/ panasonic
8	24 inches AIO Desktop Computer	2	Dell/ HP
9	17 inches Laptop Computer	1	HP / Dell/Asus
10	Headsets - with active noise cancelation	2	Sennheiser/ Audio Technica
11	Portable chroma screen 10 feet height 15 feet width	1	Leska/ Canara/Shenoy

#### 6. Dean's Committee Room

S. No	Item Description	Qty	Approved Make
1	Full HD PTZ camera (Ethernet based) NDI enable with remote controls - 10x Optical zoom	1	Sony/ Panasonic Or Equivalent
2	Microphone: Table top (USB) Omnidirectional	1	Sennheiser/ Audio Technica
3	75 inches full HD TV / monitor / Display with speakers	1	Panasonic Or Equivalent
4	24 inches AIO Desktop Computer	1	Dell/ HP
5	Headsets - with active noise cancelation	2	Sennheiser/ Audio Technica
6	Portable chroma screen 10 feet height 15 feet width	1	Leska/ Canara/

### 7. Studio no 1 SET

S. No	Item Description	Qty	Approved Make
1	Full HD PTZ camera (Ethernet based) NDI enable with remote controls - 10x Optical zoom	3	Sony/ Panasonic Or Equivalent
2	8 Port Manageable PoE+ Ethernet Switch	1	Netgear/ Cisco
3	Sound Mixer: 12 input, USB Output	1	Yamaha/ Allen Heath/ Soundcraft
4	Microphone: (USB)	1	Beyerdynamic/ Sennheiser
5	Microphone: Table top (XLR)	6	Sennheiser/ Shure/ AKG
6	Microphone: handheld wireless microphone (XLR) with stand	2	Sennheiser/ Shure/ AKG
7	LED Lights, 60 watts each with ceiling mount and safety chain	8	Leska/ Canara/Shenoy
8	75 inches full HD TV	2	Panasonic Or Equivalent
9	24 inches AIO Desktop Computer	2	HP/ Dell
10	17 inches Laptop Computer	1	HP/ Dell/ Asus
11	Active speakers: Set of 4	1	M-Audio / Presonus/ Alesis/ JBL/ Yamaha
12	Headset- Professional	2	Beyerdynamic/ Sennheiser/ Yamaha
13	Portable Chroma Screen 8x 16 feet (h x w) with stand and clips	1	Leska/ Canara/Shenoy/
14	External Hard Disk 2TB	2	
15	Microphone: Lapel cordless (XLR)	2	Sennheiser/ Shure/

			AKG
16	PTZ Control Unit	1	Sony/ Panasonic

### 8. Studio no 2 and 3 CMET

S.No	Item Description	Qty	Approved Make
1	Full HD PTZ camera (Ethernet based) NDI enable with remote controls - 10x Optical zoom	2	Sony/ Panasonic Or Equivalent
2	8 Port Manageable PoE+ Ethernet Switch	2	Netgear/ Cisco
3	Sound Mixer: 8 input, USB Output	2	Yamaha/ Allen Heath/ Soundcraft
4	Microphone: (USB)	2	Beyerdynamic/ Sennheiser
5	Microphone: Table top (XLR)	4	Sennheiser/ Shure/ AKG
6	Microphone: handheld wired microphone (XLR) with stand	4	Beyerdynamic/ Sennheiser
7	LED Lights, 60 watts each	12	Leska/ Canara/Shenoy
8	42 inches full HD TV	2	Panasonic Or Equivalent
9	24 inches AIO Desktop Computer	4	Dell/ HP
10	Active speakers: Set of 2	2	Alesis/ M-Audio/ Presonus/ Yamaha
11	Headset- Professional	4	Beyerdynamic/ Sennheiser/ Yamaha
12	Portable Chroma Screen 8x 16 feet (h x w) with stand and clips	2	Leska/ Canara/Shenoy

13	External Hard Disk 2TB	4	Crucial / WD
14	Microphone: Lapel cordless (XLR)	4	Sennheiser/ Shure/ AKG

### 9. Lecture theatres 3 nos

S. No	Item Description	Qty	Approved Make
1	Full HD PTZ camera (Ethernet based) NDI enable with remote controls - 10x Optical zoom	9	Sony/ Panasonic
2	8 Port Manageable PoE+ Ethernet Switch	3	Netgear/ Cisco
3	Sound Mixer: 8 input, USB Output	3	Yamaha/ Allen Heath/ Soundcraft
4	Microphone: (USB)	3	Sennheiser/ Audio Technica
5	Microphone: Table top (XLR)	6	Sennheiser/ Shure/ AKG
6	Microphone: handheld wireless (XLR) with stand	6	Beyerdunamic/ Sennheiser
7	6 LED Lights, 60 watts each	18	Leska/ Canara/Shenoy
8	Video wall of approximate size 6x8 (WxH) feet having basel to basel gap less than 1mm	3	Panasonic Or Equivalent
9	24 inches AIO Desktop Computer	3	Dell/ HP
10	Active speakers: Set of 4	3	M-Audio/ Genlec/ Alesis/ Yamaha
11	Headset- Professional	6	Beyerdynamic/ Sennheiser
12	Portable Chroma Screen 8x 16 feet (h x w) with stand and clips	3	Leska/ Canara/Shenoy
13	External Hard Disk 2TB	3	Crucial / WD
14	Microphone: Lapel cordless (XLR)	3	Sennheiser/ Shure/ AKG

15	17 inches Laptop Computer	3	Dell/ HP/Asus
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### 10. Conference Room

S.no	Item Description	Qty	Approved Make
1	Full HD PTZ camera (Ethernet based) NDI enable with remote controls - 10x Optical zoom	3	Sony/ Panasonic Or Equivalent
2	8 Port Manageable PoE+ Ethernet Switch	1	Netgear/ Cisco
3	Sound Mixer: 8 input, USB Output	1	Yamaha/ Allen Heath/ Soundcraft
4	Microphone: Table top (XLR)	4	Sennheiser/ Shure/ AKG
5	Microphone: handheld wireless (XLR) with stand	2	Beyerdynamic/ Sennheiser
6	6 LED Lights, 60 watts each	1	Leska/ Canara/Shenoy
7	Video wall of approximate size 6x8 (WxH) feet having basel to basel gap less than 1mm	1	Panasonic Or Equivalent
8	24 inches AIO Desktop Computer	1	Dell/ HP
9	Active speakers: Set of 4	1	M-Audio/ Genlec/ Alesis/ Yamaha
10	Headset- Professional	2	Sennheiser/ Yamaha
11	Portable Chroma Screen 8x 16 feet (h x w) with stand and clips	1	Leska/ Canara/Shenoy
12	External Hard Disk 2TB	1	Crucial / WD
13	Microphone: Lapel cordless (XLR)	2	Sennheiser/ Shure/ AKG
14	15 inches Laptop Computer	1	Dell/ HP/Asus

### 11. Software

S.No	Item Description	Qty.	Approved Make
1	All Computers and laptops need to be windows 10 professional based		Windows
2	Cloud Video Conferencing Software	10	Zoom/ Peoplelink
3	Microsoft Office 365 Subscription for 5 years	30	Windows
4	Video Editing Software: Corel Video Studio	8	Corel
5	Antivirus	30	Quick heal
6	Live Streaming Application	4	vMix
7	Dedicated internet connection	1	Local Internet Plan

### 12. Miscellaneous Items / works

S.No	Item Description	Qty.	Approved Make
1	Miscellaneous Installation Material including any other essential item required to complete the system. (1 Lot)	1	Standard
2	Installation, Testing & Commissioning complete system as above mentioned items/ works (1 job)	1	-
3	Training as per requirement (1 job)	1	-
4	<b>OPTIONAL</b> CAMC for a period of 5 years after completion of standard warranty / Guarantee. (1 lot)	1	-

**Note: -**

1. The make and model/part no. of each and every equipment / item / installation material etc., should be clearly mentioned in the offered Bill of QUANTITY (BOQ).
2. The suggestive Bill of Quantity (BOQ) has been provided. The bidder is required to provide the complete list of equipment, software and accessories etc., offered to meet the requirement as per specifications. The quantity of each item including sub-module etc., are to be specified clearly and compulsorily, failing which the bid is liable to be rejected summarily.
3. The bidder should provide the, offered un-priced Bill of Quantity in electronic form with the priced bid for ease of technical evaluation.

# **TECHNICAL SPECIFICATIONS**

**For**

**UPGRADATION OF CMET FACILITY WITH  
AUGMENTATION OF TV STUDIO**

**&**

**PRODUCTION FACILITY FOR ACADEMIC  
PURPOSES**

## B. TECHNICAL SPECIFICATIONS

### Upgradation of CMET facility with Augmentation of TV Studio & Production

#### Facility for Academic Purposes

#### 1. Technology Hall Video Production Studio

Software based production and streaming system with redundant power supply with control unit	
Video Input	<ul style="list-style-type: none"> <li>• SDI Video Input</li> <li>• 2 x 3G - 3G/HD/SD auto switching</li> <li>• 3G,12G* - 1 x 3G SDI and 1 x 12G SDI</li> <li>• HDMI</li> <li>• 2 x HDMI 1.4 type A connector with support for 1080p60 one up to 4k 30p</li> </ul>
Network Video Input	4 x IP inputs via NDI®, interchangeably as cam 1 to cam 4 with supported stream key.
SDI Video Input	<ul style="list-style-type: none"> <li>• SDI Video Input</li> <li>• 2 x 3G - 3G/HD/SD auto switching</li> <li>• 3G,12G* - 1 x 3G SDI and 1 x 12G SDI</li> </ul>
HDMI Video Input	<ul style="list-style-type: none"> <li>• HDMI</li> <li>• 2 x HDMI 1.4 type A connector with support for 1080p60 one up to 4k 30p</li> </ul>
HDMI Output	<ul style="list-style-type: none"> <li>• 2 x HDMI 1.4 type A connector with support for 1080p60 one up to 4k 30p</li> </ul>



Video Output	<ul style="list-style-type: none"> <li>• SDI Video Output</li> <li>• 2 x SDI - 3G/HD</li> <li>• 3G,12G - 1x3G/HD and 1x12G - 4k 30p</li> <li>• HDMI</li> <li>• 2 x HDMI 1.4 type A connector with support for 1080p60 one up to 4k 30p</li> </ul>
Network Video Output	<ul style="list-style-type: none"> <li>• NDI output:</li> <li>• program out</li> </ul>
SDI Video Output	<ul style="list-style-type: none"> <li>• SDI Video Output</li> <li>• 2 x SDI - 3G/HD</li> <li>• 3G,12G - 1x3G/HD and 1x12G - 4k 30p</li> </ul>
Multiviewer Output	<p>4 x multiviewer outputs supporting standard display resolutions, using any combination of available connections.</p> <ul style="list-style-type: none"> <li>• 1 x HDMI</li> <li>• 3 x DisplayPort</li> </ul>
DSK Channels	<p>DSK Channels</p> <p>Downstream Key - x2</p>

<b>32 Inches Full LED monitors</b>	
Screen Size	80cm (32") or more
Aspect Ratio	16:9
Brightness (Typical)	350 cd/m <sup>2</sup> or better
Resolution	1,366 x 768 or better
Speakers	10w x2

Input/Output	HDMI
Certification	BIS

<b>27 Inches Full HD LED monitors</b>	
Screen Size	27" or more
Aspect Ratio	16:9
Brightness (Typical)	350 cd/m <sup>2</sup> or better
Resolution	1,366 x 768 or better
Speakers	10w x2
Input/Output	HDMI / RGB

<b>40 Inches Full HD LED monitors</b>	
Screen Size	40" or more
Aspect Ratio	16:9
Brightness (Typical)	350 cd/m <sup>2</sup> or better
Resolution	1,920 x 1,080 or better
Speakers	10w x2
Input/Output	HDMI
Required Accessory	On wheel Stand/ Trolley

<b>Broadcast grade monitors</b>	
Panel Size	17" or more
Resolution	1920x1080
SDI Video Input	Min 1x SDI

Resolution Support	1080p(23.98/24/25/29.97/30/50/59.95/60Hz) 1080i(50/59.94/60Hz), 720p(50/59.94/60Hz), 576i(PAL)
Brightness	300 nits
Aspect Ratio	16:9, 4:3

<b>Desktop Computer</b>	
Processor	Core i7
RAM	16 GB
HDD	1 TB
Graphics card	8 GB
Accessories	Keyboard, Mouse, 19" Monitor
OS	Windows 10 Pro or above

<b>17 inches Laptop Computer</b>	
Screen Size	17.3" FHD
RAM	16 GB
Processor	AMD Ryzen™ R7/ Intel® Core™ i7
Storage	1 TB SSD
Graphics Card	NVIDIA RTX 3050-Ti 4Gb

<b>4K PTZ camera</b>	
Sensor	1/2.5" type 4K MOS or better
Zoom	10x or more

Video Format	2160p: 29.97 / 25 1080p: 59.94 / 50 / 29.97 / 25 720p: 59.94 / 50 1080i: 59.94 / 50
Min ILLUMINATION	3 lx
Video Output Interface	3G-SDI / HDMI / Ethernet
IP Protocol	NDI®   HX / RTSP / RTMP / RTMPS / SRT
Control Interface	RS-232 / RS-422 / Ethernet / Remote
White Balance	Auto / Manual
Exposure Control	Auto / Manual

<b>4K PTZ camera</b>	
Sensor	1/2.5" type 4K MOS or better
Zoom	24x or more
Video Format	2160p: 29.97 / 25 1080p: 59.94 / 50 / 29.97 / 25 720p: 59.94 / 50 1080i: 59.94 / 50
Video Output Interface	3G-SDI / HDMI / Ethernet
IP Protocol	NDI®   HX / RTSP / RTMP / RTMPS / MPEG-TS / SRT
Control Interface	RS-232 / RS-422 / Ethernet / Remote
White Balance	Auto / Manual
Exposure Control	Auto / Manual

<b>PTZ camera control unit</b>		
Input/ Output	DC 12 V IN	XLR 4-pin
	LAN (RJ-45)	10BASE-T/100BASE-TX, PoE input
	SERIAL CONT (RJ-45)	RS-422 (control signals for remote cameras), TALLY OUT
Display	3.5 inch LCD	
Connection Specifications	No. of Connectable Cameras	200 (IP), 5 (RS422)
	Remote Camera Selection	5 (6 to 200 controlled from the LCD)
	No. of Memory Presets	100

<b>Camera Stand</b>	
Base Mount	75 mm Half Ball
Bubble Level	1
Drag Type	Fluid
Vertical Tilt	+90° to -70°
Panning Range	360°
Leg Lock Type	Flip Lock
Load Capacity	5 Kg or more

<b>NAS Storage</b>	
CPU Quantity	1 or more
CPU Architecture	64- Bit
CPU Frequency	4-core 2.0 (base) / 2.7 (burst) GHz
System Memory	4 GB DDR4 non-ECC
Drive Bays	Min 4
RJ-45 1GbE LAN Port	2

<b>External SSD 512 GB</b>	
Capacity	500 GB
Interface	USB 3.2 Gen-2 (10Gb/s)
Form factor	External Portable

<b>HDMI Splitter</b>	
Distribution	1:4
HDCP	2.2 Compatible
Max Distance	5m at 4K@60Hz (4:4:4)
Max Data Rate	18Gpbs (6 Gbps Per Lane)
Max Pixel Clock	600 MHz

<b>Microphone: Wired table-top (XLR)</b>	
Connector	XLR-3
Type	Dynamic
Frequency response	55 - 14000 Hz

(Microphone)	
Polar Pattern	Cardioid
Impedance	Microphone rating impedance should be 150 $\Omega$ (270 $\Omega$ actual) for connection to microphone inputs rated at 19 to 300 $\Omega$
Required Accessory	microphone clip, Small Mic Stand for Table

<b>Microphone: Wired lapel (XLR)</b>	
Connector	XLR-3
Type	Pre-polarized condenser microphone
Polar Pattern	Omnidirectional
Audio frequency bandwidth	20 - 20000 Hz
SNR	60 dB-A

<b>Microphone: handheld cordless (XLR)</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz

<b>Microphone: Lapel cordless (XLR)</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz

<b>Sound Mixer: 12 input, USB Output</b>		
Inputs	Mono (Mic/line)	4
	Mono/ Stereo (Mic/line)	2
	Strereo (line)	2
Outputs	STEREO OUT	2
	MONITOR OUT	1
	PHONES	1
	Aux Send	2
	Group Out	2
USB Audio 2 IN / 2 OUT 24bit / 192kHz	Yes	
Phantom Power Voltage	+48 V	
Crosstalk	-78 dB	
Bus	Stereo: 1, GROUP: 2, AUX: 2 (incl. FX)	

<b>LED Lights Sets</b>	
LED Colour	5600K/3200K
Panel Size	12x12 inch
Control	Compatible Dimmer
Required Accessories	Compatible light Stand, Leaf Barn Door

<b>Headset - Earphone</b>	
<b>Headphones</b>	
Type	Closed-back



Frequency Response	20 Hz - 20,000 Hz
Impedance	35 $\Omega$
Sound Pressure Level	94.4 dB/mW
Maximum Input Power	1,000 mW
<b>Microphone</b>	
Type	Electret Condenser Microphone
Polar Pattern	Uni Polar
Frequency Response	250 Hz - 15,000 kHz
Sensitivity	-39 dB (0 dB = 1 V/Pa)
Maximum Input SPL	100 dB SPL

<b>Active Speakers: set of 2</b>	
Frequency Response	56 Hz - 20 kHz or Higher
Output Power	40 W x 2 or More
LF Driver	5" / 127 mm or Bigger
HF Driver	1" / 25 mm; silk dome or Bigger
Front Baffle Thickness	15mm or More
Audio Inputs	RCA & 1/4" (6.35 mm) (left & right)
Headphone Output	1/8" (3.5 mm) stereo

<b>Headset - Cordless for Studio floor manager (1 is to 3)</b>	
Range	1/4 Mile
Auto Mute	by moving the boom to up position

Volume Control	up / down push button
Standard	DECT 6.0 (Digital Enhanced Cordless Telecommunications)
Tuning Range Receive (MHz)	1921.536 to 1928.448MHz
Transmit Power	100mW
Channel Bandwidth	1.728 GHz
Speech Encoding	ADPCM / 32bit/s
RF Accessing	Time Division Multiple Access (TDMA)
Headset Power Supply	Rechargeable Lithium 3.7 V/ 800 mAh 3.0 Wh

<b>24 Port Manageable PoE+ Ethernet Switch</b>	
Primary Port Speed	1 Gigabit
Number of Ports	30 (24x 1G PoE+, 2x 1G, 4x SFP)
PoE Ports / Budget	24 PoE+ (30W/port), 300W Budget
IGMP Support	Enhanced
Jumbo Frame Support	Yes, up to 12kb
PoE+ Ports (802.3at)	24
CPU	Dedicated Quad-Core Cortex-A57 ARMv8 1.8Ghz CPU (64-bit)
Code storage (flash)	256 MB
Dedicated AV Features	Dante, Q-SYS, AES67

<b>10 KVA UPS</b>	
Max Load	10 KVA PC Load for 30 Min

Phase	Single Phase in Single Phase Out
Make	The Manufacturer of the product (OEM) should be ISO 9001:2008 Process Certified for manufacturing
Neutral	Neutral Passing through
Waveform Type	Pure Sine wave
<b>Input</b>	
Nominal Voltage	230 single phase Nominal
Voltage range	176 - 300V
Input frequency	40-70 Hz Auto sensing
<b>Output</b>	
Nominal Voltage	
Output frequency	50/60 Hz $\pm$ 3 Hz (On Mains) or 50/60 Hz $\pm$ 0.1 Hz (On Battery)
Topology	Double-conversion online
Efficiency: Double conversion mode(typical)	Upto 94%
<b>Battery External</b>	
Type	SMF VRLA
Battery Backup	Minimum 30 min
Qty	Min 26 AH, 32 Nos or equivalent
<b>General</b>	
Cables	Bidder should provide necessary cables, plug, Racks and Battery links to complete the Installation Of UPS.

<b>Racks</b>	
Adjustable 19" mounting verticals	2 Pair of 19" Adjustable Angle.
Depth adjustable mounting slots	Depth Support Channel
Top and bottom Panel with ventilation and cable entry facility	
Provision to mount the cooling fans on the top panel	
15U Closed Rack / Width 600 / Depth 600	
Door : Lockable Toughened Glass Door	Front Toughened glass door and rear steel door with locking provision

Construction : Steel	CRCA Steel
Mounting Angle : 19" Mounting angles made of formed steel	2 Pairs of 19" Mounting Angels adjustable
Top and Bottom Cover : Welded to Frame, Vented and Field Cable entry exit cut outs	Cable entry cut outs through PVC Plate or Rubber Groumet
Mounting Option : Castor wheels (Front 2 wheels with Break and rear without break) Or Levelers Or Base plinth	Castor wheels (Front 2 wheels with Break and rear without break)
Accessories : Doors & Fixed Side Panels, Cable Manager, 2 * Fans and Fan Modules, 2 * Mounting Hardware, Power Distribution Units Horizontal with 6 nos of 5/15A sockets	

### **Brick work/ wood work/ Acoustic/ AC Duct Modification**

Wall Acoustic:

Supplying and fixing using 2"x 1.5" G I frame from ground level. acoustics with 2" air gap for better damping factor ( reduce the low frequency booming) Wall with filling of Rock wool covered by gypsum board.

For Acoustic protect & fix the glass wool using primary Fabric with nels. Upto 3 'use resonators for maintaining the low & mid frequency reflections. Above 3' height using 2' x1.5' wooden framing with fill of glass wool & fabric.

**Note:** The Wall Acoustic may vary as per the End User Requirements.

## 2. Video Lecture/Online meeting studio/ editing Rooms

<b>24 inches AIO Desktop Computer</b>		
Processor type	11th Generation Intel Core i7	
Chipset	Integrated in the processor	
Memory speed	2666 MHz	
RAM	32 Gb	
Network	One RJ-45 port	
Audio	Audio-out port	
	Internal audio interface	High definition audio interface
	Number of speakers	2
	Stereo conversion	Yes
HDD	1 TB or more	
Display	Type	Full High Definition (FHD)
	panel technology	Wide Viewing Angle (WVA)
	panel native resolution	1920x1080
	Luminance	250 nits
Graphics	8 Gb	

<b>27 Inches Full HD LED monitors</b>	
Screen Size	27" or more
Aspect Ratio	16:9
Brightness (Typical)	350 cd/m <sup>2</sup> or better
Resolution	1,366 x 768 or better
Speakers	10w x2
Input/Output	HDMI / RGB

<b>Full HD Webcam</b>	
Resolution support	4K (Ultra HD) @ 30 fps, 1080p (Full HD) @ 30 or 60 fps and 720p (HD) @ 30, 60, or 90 fps
Image sensor	Ultra HD 4K
Focus type	Auto
Lens technology	Glass
Built-in mic	Stereo

Diagonal FoV	90° / 78° / 65°
Digital zoom	5x
Mic range	Up to 1.22 m
Connectivity	USB

<b>Microphone: Wired (USB)</b>	
CONNECTION TYPE	USB
TRANSDUCER TYPE	Condenser
POLAR PATTERN	Cardioid
MICROPHONE FREQUENCY RESPONSE	20 - 20.000 Hz
Sensitivity at 94 dB SPL / 1 kHz	-15 dBFS / -33 dBFS
Power supply	USB

<b>Microphone: Wired lapel (Analog output)</b>	
Type	Pre-polarized condenser microphone
Polar Pattern	Omnidirectional
Audio frequency bandwidth	20 - 20000 Hz
Equivalent noise level	34 dB-A
Signal to Noise	60 dB-A
Electrical impedance	200 Ohms
Device	Lavalier Microphone
Audio Output	XLR, 3-pin

<b>Sound Mixer: 4 input, USB Output</b>		
Inputs	Mono (Mic/line)	4
	Mono/ Stereoo (Mic/line)	0
	Stereoo (line)	3
Outputs	STEREO OUT	2
	MONITOR OUT	1
	PHONES	1
	Aux Send	1
	Group Out	0
USB Audio 2 IN / 2 OUT 24bit / 192kHz	Yes	

Phantom Power Voltage	+48 V
Crosstalk	-83 dB

<b>LED Lights Sets</b>	
LED Colour	5600K/3200K
Panel Size	12x12 inch
Control	Compatible Dimmer
Required Accessories	Compatible light Stand, Leaf Barn Door

<b>Headset - Earphone</b>	
<b>Headphones</b>	
Type	Closed-back
Frequency Response	20 Hz - 20,000 Hz
Impedance	35 $\Omega$
Sound Pressure Level	94.4 dB/mW
Maximum Input Power	1,000 mW
<b>Microphone</b>	
Type	Electret Condenser Microphone
Polar Pattern	Uni Polar
Frequency Response	250 Hz - 15,000 kHz
Sensitivity	-39 dB (0 dB = 1 V/Pa)
Maximum Input SPL	100 dB SPL

<b>Vocal Booth Reflection Filter</b>	
Application	Acoustic Shield
Dimensions	18 1/2" x 12" x 2"
Height Adj	5.5" from level
Depth Adj	2" - 7" from screen
Material	Vented aluminum with 2" acoustic foam

<b>Active Speakers: set of 2</b>	
Frequency Response	56 Hz - 20 kHz
Output Power	40 W x 2
LF Driver	5" / 127 mm

HF Driver	1" / 25 mm; silk dome
Front Baffle Thickness	15mm
Audio Inputs	RCA & 1/4" (6.35 mm) (left & right)
Headphone Output	1/8" (3.5 mm) stereo

External Hard disk	
Capacity	2 Tb
Compatible Devices	Laptop, Desktop
Hard Disk Interface	USB 2.0 or more

10 KVA UPS	
Max Load	10 KVA PC Load for 30 Min
Phase	Single Phase in Single Phase Out
Make	The Manufacturer of the product (OEM) should be ISO 9001:2008 Process Certified for manufacturing
Neutral	Neutral Passing through
Waveform Type	Pure Sine wave
Input	
Nominal Voltage	230 single phase Nominal
Voltage range	176 - 300V
Input frequency	40-70 Hz Auto sensing
Output	
Nominal Voltage	
Output frequency	50/60 Hz $\pm$ 3 Hz (On Mains) or 50/60 Hz $\pm$ 0.1 Hz (On Battery)
Topology	Double-conversion online
Efficiency: Double conversion mode(typical)	Upto 94%
Battery External	
Type	SMF VRLA
Battery Backup	Minimum 30 min
Qty	Min 26 AH, 32 Nos or equivalent
General	
Cables	Bidder should provide necessary cables, plug, Racks and Battery links to complete the Installation Of UPS.



### 3. DSLR Camera Mobile Unit

<b>Full frame 24 MegaPixel 4K60p Digital Camera (Body Only)</b>	
TYPE	Digital camera with support for interchangeable lenses
LENS MOUNT	Nikon Z mount
PICTURE ANGLE	Full-frame/FX-format
SENSOR SIZE	35.9 mm x 23.9 mm
IMAGE SENSOR TYPE	CMOS
TOTAL PIXELS	25.28 million
IMAGE AREA (PIXELS)	Image Area (L) FX 6,048 x 4,024 (Large) 4,528 x 3,016 (Medium) 3,024 x 2,016 (Small) Image Area (L) DX 3,936 x 2,624 (Large) 2,944 x 1,968 (Medium) 1,968 x 1,312 (Small) Image Area (L) 1:1 (24 x 24) 4,016 x 4,016 (Large) 3,008 x 3,008 (Medium) 2,000 x 2,000 (Small) Image Area (L) 16:9 (36 x 20) 6,048 x 3,400 (Large) 4,528 x 2,544 (Medium) 3,024 x 1,696 (Small) Photographs taken during movie recording at a frame size of 3,840 x 2,160: 3,840 x 2,160 Photographs taken during movie recording at other frame sizes: 1,920 x 1,080: 1,920 x 1,080
CARD SLOT	Dual Slots
VIEWFINDER	1.27-cm (0.5-in.) approx. 3690k-dot (Quad VGA) OLED with color balance and auto and 11-level manual brightness controls
COMPATIBLE LENSES	Z mount NIKKOR lenses F mount NIKKOR lenses with mount adapter;
EXPOSURE METERING	TTL metering using camera image sensor
ISO SENSITIVITY	ISO 100 - 51,200
MOVIE	4K UHD 3,840x2,160 / 30 fps 4K UHD 3,840x2,160 / 25 fps 4K UHD 3,840x2,160 / 24 fps Full HD 1,920x1,080 / 120 fps Full HD 1,920x1,080 / 100 fps Full HD 1,920x1,080 / 60 fps Full HD 1,920x1,080 / 50 fps Full HD 1,920x1,080 / 30 fps Full HD 1,920x1,080 / 25 fps Full HD 1,920x1,080 / 24 fps Full HD 1,920x1,080 slow-mo / 30 fps x4 Full HD 1,920x1,080 slow-mo / 25 fps x4 Full HD 1,920x1,080 slow-mo / 24 fps x5 Actual frame rates for 120p, 100p, 60p, 50p, 30p, 25p, and 24p are 119.88, 100, 59.94, 50, 29.97, 25, and 23.976 fps respectively Quality selection available at all sizes except 3,840 x 2,160, 1,920 x 1,080 120p/100p, and 1,920 x 1,080 slow-motion, when quality is fixed at m
Required Accessories	Adopter to use old AF/DX lenses with each camera 2 nos Compatible lens 24-200MM Full frame lens 1 no Compatible lens 50MM 1.8 Full frame lens 1 no

<b>Camera Stand</b>	
Base Mount	75 mm Half Ball
Bubble Level	1
Drag Type	Fluid
Panning Range	360°
Load Capacity	10 Kg or more

<b>Microphone: Set of two cordless microphone</b>		
Wireless Receiver:	Frequency Range	740-797Mhz
	Oscillation Mode	PLL
	Channel	16CH / 48CH
	Modulation Model	FM
	SNR	90Db
	Frequency Response	40Hz-17kHz
	T.H.D	<1%
Handheld Transmitter	Output impedance	600ohm
	Power Output	10dBm
	Oscillation model	PLL
	Frequency Stability	+ -0.002%
Required Accessory	Frequency Response	40Hz-16kHz
	Able to fix in flash shoe, and attached with 3.5mm TSR Jack	

<b>Microphone: Wired lapel 3.5mm TRS jack</b>	
Type	Omnidirectional Condenser Lavalier Microphone, Jack 3.5mm
FREQUENCY RESPONSE	50 - 18,000 Hz
IMPEDANCE	1,000 Ω
ELEMENT	Condenser
OPEN CIRCUIT SENSITIVITY	-54dB

<b>Microphone: video micorphone 3.5mm jack - on camera</b>	
Polar Pattern	Supercardioid
Acoustic Principle	100Hz - 16kHz
Capsule	0.50"
Maximum SPL	120dB SPL
Output Connection	Minijack / 3.5mm TRS

<b>Headset - Earphone</b>	
<b>Headphones</b>	
Type	Closed-back
Frequency Response	20 Hz - 20,000 Hz
Impedance	35 $\Omega$
Sound Pressure Level	94.4 dB/mW
Maximum Input Power	1,000 mW
<b>Microphone</b>	
Type	Electret Condenser Microphone
Polar Pattern	Uni Polar
Frequency Response	250 Hz - 15,000 kHz
Sensitivity	-39 dB (0 dB = 1 V/Pa)
Maximum Input SPL	100 dB SPL

<b>Set of three portable LED lights</b>	
Type	Set of 3 Light for indoor and outdoor
Additional Accessories	Compact Kit with 3 Light, Dimmer controller & 3 Umbrellas, 3 Stands, Carry bag
Features	different shooting result, Should be ideal for Indoor and outdoor

<b>Battery operated Light</b>	
Color Temperature	4500k-3200K
Barn door	Yes
Filter	Spot Filter

<b>Electronic Gimbal</b>	
No of Axis	3 (Pitch, Roll, Yaw)
Yaw (Pan)	360°
Rotation Range Pitch (Tilt)	310° (-130 to 180°)
Roll	340° (-280 to 60°)
Inputs/Outputs	1 x 1/8" / 3.5 mm (Audio) Input 1 x USB Type-C Input 1 x USB Type-C (1 A 5 VDC Video) Input 1 x USB Type-C (1.8 A 12 VDC Power) Input
Wireless Frequency	2.4 GHz
Wireless Protocol	Bluetooth 5.0
Battery Capacity	2600 mAh

Battery Runtime	21 Hours
Battery Chemistry	Lithium-Ion
Display Type	Fixed Touch screen OLED
Mounting	3x 1/4" - 20 Female 2x 1/4" - 20 Male
Required / Supplied Accessories	Stabilizer Tripod Quick Release Plate (Double layer quick release) Fill Light Filter Lens Support USB Charging Cable Wrist Rest Extendable Sling Grip Backpack

#### 4. Video Camera Mobile Unit

Video Camera: 4K resolution	
Camera	High Performance 4k & HD-SD SDI Hand Held/Tripod Mountable Camera System for Studio & Outdoor Applications
Imaging Device	1 inch CMOS sensor
Lens	20x or more
Sensitivity	F12 (2000 lx, 3200 K, 89.9 % reflect, 2160/59.94p, 1080/59.94i) F13 (2000 lx, 3200 K, 89.9 % reflect, 2160/50p, 1080/50i)
Video output	HD-SDI output (BNC x 1) HDMI output x 1
USB	HOST x 1 (network connection)

Camera Stand	
Base Mount	75 mm Half Ball
Bubble Level	1
Drag Type	Fluid
Panning Range	360°
Load Capacity	10 Kg or more

<b>Microphone: Set of two cordless microphone</b>		
Wireless Receiver:	Acoustic Principle	Pre-polarised pressure transducer
	Frequency Range	50Hz - 20kHz
	Maximum SPL	100 dB SPL (1kHz @ 1m) dBu
	Maximum Input Level (3.5mm)	-20dBV
	Microphone Preamp Gain	20dB
	Equivalent Noise Level (A-Weighted)	22dBA
	Transmission Range	200m (line of sight)
	Computer Connectivity	USB Type-C
Compatible Handheld	2 nos Handheld Adaptor for operations	
Required Accessory	Receiver able to fix in flash shoe, and attached with 3.5mm TSR Jack	

<b>Headset - Earphone</b>	
Headphones	
Type	Closed-back
Frequency Response	20 Hz - 20,000 Hz
Impedance	35 $\Omega$
Sound Pressure Level	94.4 dB/mW
Maximum Input Power	1,000 mW
Microphone	
Type	Electret Condenser Microphone
Polar Pattern	Uni Polar
Frequency Response	250 Hz - 15,000 kHz
Sensitivity	-39 dB (0 dB = 1 V/Pa)
Maximum Input SPL	100 dB SPL

<b>Set of three portable LED lights</b>	
Type	Set of 3 Light for indoor and outdoor
Additional Accessories	Compact Kit with 3 Light, Dimmer controller & 3 Umbrellas, 3 Stands, Carry bag
Features	different shooting result, Should be ideal for Indoor and outdoor

<b>Battery operated Light</b>	
Color Temperature	4500k-3200K
Barn door	Yes
Filter	Spot Filter

## 5. Directors Board Room

<b>Full HD PTZ camera</b>	
Sensor	1/2.5" type 4K MOS or better
Zoom	10x or more
Video Format	2160p: 29.97 / 25 1080p: 59.94 / 50 / 29.97 / 25 720p: 59.94 / 50 1080i: 59.94 / 50
Min ILLUMINATION	3 lx
Video Output Interface	3G-SDI / HDMI / Ethernet
IP Protocol	NDI®   HX / RTSP / RTMP / RTMPS / SRT
Control Interface	RS-232 / RS-422 / Ethernet / Remote
White Balance	Auto / Manual
Exposure Control	Auto / Manual

<b>PTZ camera control unit</b>		
Input/ Output	DC 12 V IN	XLR 4-pin
	LAN (RJ-45)	10BASE-T/100BASE-TX, PoE input
	SERIAL CONT (RJ-45)	RS-422 (control signals for remote cameras), TALLY OUT

Display	3.5 inch LCD	
Connection Specifications	No. of Connectable Cameras	200 (IP), 5 (RS422)
	Remote Camera Selection	5 (6 to 200 controlled from the LCD)
	No. of Memory Presets	100

PTZ camera control unit		
Input/ Output	DC 12 V IN	XLR 4-pin
	LAN (RJ-45)	10BASE-T/100BASE-TX, PoE input
	SERIAL CONT (RJ-45)	RS-422 (control signals for remote cameras), TALLY OUT
Display	3.5 inch LCD	
Connection Specifications	No. of Connectable Cameras	200 (IP), 5 (RS422)
	Remote Camera Selection	5 (6 to 200 controlled from the LCD)
	No. of Memory Presets	100

8 Port Manageable PoE+ Ethernet Switch	
Primary Port Speed	1 Gigabit
Number of Ports	12 (8x 1G PoE+, 2x SFP)
PoE Ports / Budget	8 PoE+ (30W/port), 125W Budget
IGMP Support	Enhanced
Jumbo Frame Support	Yes, up to 12kb
PoE+ Ports (802.3at)	8
CPU	ARM A9 1.25Ghz 32-Bit 2GB RAM

Code storage (flash)	256 MB
Dedicated AV Features	Dante, Q-SYS, AES67

<b>Sound Mixer: 4 input, USB Output</b>		
Inputs	Mono (Mic/line)	4
	Mono/ Stereo (Mic/line)	0
	Stereo (line)	3
Outputs	STEREO OUT	2
	MONITOR OUT	1
	PHONES	1
	Aux Send	1
	Group Out	0
USB Audio 2 IN / 2 OUT 24bit / 192kHz	Yes	
Phantom Power Voltage	+48 V	
Crosstalk	-78 dB	

<b>LED Lights Sets</b>	
LED Colour	5600K/3200K
Panel Size	12x12 inch
Control	Compatible Dimmer
Required Accessories	Compatible light Stand, Leaf Barn Door

<b>4K Laser Projector</b>	
Native Resolution:	WUXGA (1920 x 1200) 4K Enhancement Technology shifts each pixel to surpass Full HD resolution on screen.
Light source	Laser
Network Protocol	HTTPS, IPv6, SNMP, ESC/VP.net, PJLink
Interface	USB 2.0 Type A (2x), USB 2.0 Type B (Service Only), RS-232C, Ethernet interface (100 Base-TX / 10 Base-T), HDMI
Colour Light Output:	5000 lumen or better
Required Accessory	Compatible motorized Screen



<b>24 inches AIO Desktop Computer</b>		
Processor type	11th Generation Intel Core i7	
Chipset	Integrated in the processor	
Memory speed	2666 MHz	
RAM	32 Gb	
Network	One RJ-45 port	
Audio	Audio-out port	
	Internal audio interface	High definition audio interface
	Number of speakers	2
	Stereo conversion	Yes
HDD	1 TB or more	
Display	Type	Full High Definition (FHD)
	panel technology	Wide Viewing Angle (WVA)
	panel native resolution	1920x1080
	Luminance	250 nits
Graphics	8 Gb	

<b>17 inches Laptop Computer</b>	
Screen Size	17.3" FHD
RAM	16 GB
Processor	AMD Ryzen™ R7/ Intel® Core™ i7
Storage	1 TB SSD
Graphics Card	NVIDIA RTX 3050-Ti 4Gb

<b>Headsets- with active noise cancellation</b>	
Type	Closed-back Dynamic (Headphone) Cardioid Dynamic (Microphone)
Driver Diameter	40 mm (Headphone)
Frequency Response	20-20,000 Hz (Headphone) 40-20,000 Hz (Microphone)
Sensitivity	100 dB (Headphone) -57 dB (1.4 mV) re 1V at 1 Pa (Microphone)
Impedance	65 ohms (Headphone) 560 ohms (Microphone)

## 6. Dean's Committee Room

<b>Full HD PTZ camera</b>	
Sensor	1/2.5" type 4K MOS or better
Zoom	10x or more
Video Format	2160p: 29.97 / 25 1080p: 59.94 / 50 / 29.97 / 25 720p: 59.94 / 50 1080i: 59.94 / 50
Min ILLUMINATION	3 lx
Video Output Interface	3G-SDI / HDMI / Ethernet
IP Protocol	NDI®   HX / RTSP / RTMP / RTMPS / SRT
Control Interface	RS-232 / RS-422 / Ethernet / Remote
White Balance	Auto / Manual
Exposure Control	Auto / Manual

<b>Microphone: Table Top (USB)</b>	
Element	Fixed-charge back plate, permanently polarized condenser
Polar Pattern	Cardioid
Frequency Response	20 - 20,000 Hz
Power Requirements	USB Power (5V DC)
Bit Depth	16 bit
Sample Rate	44.1/48 kHz
Output Connector	USB

<b>75 inch full HD TV/ monitor/ Display with speakers</b>	
Size	75 inch (189.3 cm)
Ratio	16:9
Viewing Angle (HxV)	178° x178°

Speaker Type	Stereo Speakers (10w x2)
Resolution	3840 x 2160 (4K)
Number Of HDMI Ports	2 or more
Feature/ accessory required	Display by itself or with additional accessory should support wireless display mirroring for windows or Apple Airplay 2

<b>24 inches AIO Desktop Computer</b>		
Processor type	11th Generation Intel Core i7	
Chipset	Integrated in the processor	
Memory speed	2666 MHz	
RAM	32 Gb	
Network	One RJ-45 port	
Audio	Audio-out port	
	Internal audio interface	High definition audio interface
	Number of speakers	2
	Stereo conversion	Yes
HDD	1 TB or more	
Display	Type	Full High Definition (FHD)
	panel technology	Wide Viewing Angle (WVA)
	panel native resolution	1920x1080
	Luminance	250 nits
Graphics	8 Gb	

<b>Headsets- with active noise cancellation</b>	
Type	Closed-back Dynamic (Headphone) Cardioid Dynamic (Microphone)
Driver Diameter	40 mm (Headphone)
Frequency Response	20-20,000 Hz (Headphone) 40-20,000 Hz (Microphone)
Sensitivity	100 dB (Headphone) -57 dB (1.4 mV) re 1V at 1 Pa (Microphone)
Impedance	65 ohms (Headphone) 560 ohms (Microphone)

## 7. STUDIO NO.1 SET

<b>Full HD PTZ camera</b>	
Sensor	1/2.5" type 4K MOS or better
Zoom	10x or more
Video Format	2160p: 29.97 / 25 1080p: 59.94 / 50 / 29.97 / 25 720p: 59.94 / 50 1080i: 59.94 / 50
Min ILLUMINATION	3 lx
Video Output Interface	3G-SDI / HDMI / Ethernet
IP Protocol	NDI®   HX / RTSP / RTMP / RTMPS / SRT
Control Interface	RS-232 / RS-422 / Ethernet / Remote
White Balance	Auto / Manual
Exposure Control	Auto / Manual

<b>8 Port Manageable PoE+ Ethernet Switch</b>	
Primary Port Speed	1 Gigabit
Number of Ports	12 (8x 1G PoE+, 2x SFP)
PoE Ports / Budget	8 PoE+ (30W/port), 125W Budget
IGMP Support	Enhanced
Jumbo Frame Support	Yes, up to 12kb
PoE+ Ports (802.3at)	8
CPU	ARM A9 1.25Ghz 32-Bit 2GB RAM
Code storage (flash)	256 MB
Dedicated AV Features	Dante, Q-SYS, AES67

<b>Sound Mixer: 12 input, USB Output</b>		
Inputs	Mono (Mic/line)	4
	Mono/ Stereo (Mic/line)	2
	Stereo (line)	2
Outputs	STEREO OUT	2
	MONITOR OUT	1
	PHONES	1
	Aux Send	2
	Group Out	2
USB Audio 2 IN / 2 OUT 24bit / 192kHz	Yes	
Phantom Power Voltage	+48 V	
Crosstalk	-78 dB	
Bus	Stereo: 1, GROUP: 2, AUX: 2 (incl. FX)	

<b>Microphone: Wired (USB )</b>	
CONNECTION TYPE	USB
TRANSDUCER TYPE	Condenser
POLAR PATTERN	Cardioid
MICROPHONE FREQUENCY RESPONSE	20 - 20.000 Hz
Sensitivity at 94 dB SPL / 1 kHz	-15 dBFS / -33 dBFS
Power supply	USB

<b>Microphone: Table-top (XLR)</b>	
Connector	XLR-3
Type	Dynamic
Frequency response (Microphone)	55 - 14000 Hz
Polar Pattern	Cardioid
Impedance	Microphone rating impedance should be 150 $\Omega$ (270 $\Omega$ actual) for connection to microphone inputs rated at 19 to 300 $\Omega$
Required Accessory	microphone clip, Small Mic Stand for Table

<b>Microphone: handheld wireless microphone (XLR) with stand</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz
Required Accessory	Compatible Stand

<b>LED Lights, 60 watts each with ceiling mount and safety chain</b>	
LED Colour	5600K/3200K
Panel Size	12x12 inch
Control	Compatible Dimmer
Required Accessories	Compatible light Stand, Leaf Barn Door
Required Accessories	Ceiling mount kit with Safety chain

<b>75 inch full HD TV/ monitor/ Display with speakers</b>	
Size	75 inch (189.34 cm)
Ratio	16:9
Viewing Angle (HxV)	178° x178°
Speaker Type	Stereo Speakers (10w x2)
Resolution	3840 x 2160 (4K)
Number Of HDMI Ports	2 or more
Feature/ accessory required	Display by itself or with additional accessory should support wireless display mirroring for windows or Apple Airplay 2

<b>24 inches AIO Desktop Computer</b>		
Processor type	11th Generation Intel Core i7	
Chipset	Integrated in the processor	
Memory speed	2666 MHz	
RAM	32 Gb	
Network	One RJ-45 port	
Audio	Audio-out port	
	Internal audio interface	High definition audio interface
	Number of speakers	2
	Stereo conversion	Yes

HDD	1 TB or more	
Display	Type	Full High Definition (FHD)
	panel technology	Wide Viewing Angle (WVA)
	panel native resolution	1920x1080
	Luminance	250 nits
Graphics	8 Gb	

<b>17 inches Laptop Computer</b>	
Screen Size	17.3" FHD
RAM	16 GB
Processor	AMD Ryzen™ R7/ Intel® Core™ i7
Storage	1 TB SSD
Graphics Card	NVIDIA RTX 3050-Ti 4Gb

<b>Active Speaker: Set of 4</b>	
Frequency Response	80 Hz to 20 kHz
Crossover Frequency	2.8 kHz
Amplifier Power	100 dB
LF Driver	3.5"
HF Driver	1" Silk Dome
Input Impedance	10 K $\Omega$
Volume Range	A-Type Taper
MF Control	Variable (-6 to +6 dB, center 100 Hz)
HF Control	Variable (-6 to +6 dB, center 10 kHz)
Protection	RF interference Output-current limiting Over-temperature Turn-on/off transient Subsonic filter External mains fuse

<b>Headset-Professional</b>	
Headphones	
Type	Closed-back
Frequency Response	20 Hz - 20,000 Hz
Impedance	35 $\Omega$

Sound Pressure Level	94.4 dB/mW
Maximum Input Power	1,000 mW
<b>Microphone</b>	
Type	Electret Condenser Microphone
Polar Pattern	Uni Polar
Frequency Response	250 Hz - 15,000 kHz
Sensitivity	-39 dB (0 dB = 1 V/Pa)
Maximum Input SPL	100 dB SPL

<b>External Hard disk</b>	
Capacity	2 Tb
Compatible Devices	Laptop, Desktop
Hard Disk Interface	USB 2.0 or more

<b>Microphone: Lapel cordless (XLR)</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz

<b>PTZ camera control unit</b>		
Input/ Output	DC 12 V IN	XLR 4-pin
	LAN (RJ-45)	10BASE-T/100BASE-TX, PoE input
	SERIAL CONT (RJ-45)	RS-422 (control signals for remote cameras), TALLY OUT
Display	3.5 inch LCD	
Connection Specifications	No. of Connectable Cameras	200 (IP), 5 (RS422)
	Remote Camera Selection	5 (6 to 200 controlled from the LCD)



	No. of Memory Presets	100
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## 8. STUDIO NO 2 AND 3 CMET

<b>Full HD PTZ camera</b>	
Sensor	1/2.5" type 4K MOS or better
Zoom	10x or more
Video Format	2160p: 29.97 / 25 1080p: 59.94 / 50 / 29.97 / 25 720p: 59.94 / 50 1080i: 59.94 / 50
Min ILLUMINATION	3 lx
Video Output Interface	3G-SDI / HDMI / Ethernet
IP Protocol	NDI®   HX / RTSP / RTMP / RTMPS / SRT
Control Interface	RS-232 / RS-422 / Ethernet / Remote
White Balance	Auto / Manual
Exposure Control	Auto / Manual

<b>8 Port Manageable PoE+ Ethernet Switch</b>	
Primary Port Speed	1 Gigabit
Number of Ports	12 (8x 1G PoE+, 2x SFP)
PoE Ports / Budget	8 PoE+ (30W/port), 125W Budget
IGMP Support	Enhanced
Jumbo Frame Support	Yes, up to 12kb
PoE+ Ports (802.3at)	8
CPU	ARM A9 1.25Ghz 32-Bit 2GB RAM
Code storage (flash)	256 MB

Dedicated AV Features	Dante, Q-SYS, AES67
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<b>Sound Mixer: 8 input, USB Output</b>		
Inputs	Mono (Mic/line)	4
	Mono/ Stereo (Mic/line)	0
	Stereo (line)	3
Outputs	STEREO OUT	2
	MONITOR OUT	1
	PHONES	1
	Aux Send	1
	Group Out	0
USB Audio 2 IN / 2 OUT 24bit / 192kHz	Yes	
Phantom Power Voltage	+48 V	
Crosstalk	-83 dB	

<b>Microphone: (USB )</b>	
CONNECTION TYPE	USB
TRANSDUCER TYPE	Condenser
POLAR PATTERN	Cardioid
MICROPHONE FREQUENCY RESPONSE	20 - 20.000 Hz
Sensitivity at 94 dB SPL / 1 kHz	-15 dBFS / -33 dBFS
Power supply	USB

<b>Microphone: Wired table-top (XLR)</b>	
Connector	XLR-3
Frequency response (Microphone)	40 - 16000 Hz
Sensitivity in free field, no load (1kHz)	2,7 mV/Pa
Nominal impedance	350 Ω
Required Accessory	microphone clip, Small Mic Stand for Table

<b>Microphone: Handheld wired (XLR) with Stand</b>		
Transducer type	Dynamic	
Operating principle	Pressure gradient	
Polar pattern	Supercardioid	
Frequency response	Close miking	30 - 18,000 Hz
	Distant miking	55 - 18,000 Hz
Rear attenuation at 1 kHz	> 20 dB at 140°	
Open circuit voltage	2.5 mV/Pa (-52 dBV)	
Nominal impedance	600 Ω	
Load impedance	2 kΩ	
Connection	XLR, 3-pin, male	
Required Accessory	Compatible Stand	

<b>LED Lights, 60 watts each with ceiling mount and safety chain</b>	
LED Colour	5600K/3200K
Panel Size	12x12 inch
Control	Compatible Dimmer
Required Accessories	Compatible light Stand, Leaf Barn Door

<b>40 Inches Full HD LED monitors</b>	
Screen Size	40" or more
Aspect Ratio	16:9
Brightness (Typical)	350 cd/m <sup>2</sup> or better
Resolution	1,920 x 1,080 or better
Speakers	10w x2
Input/Output	HDMI
Required Accessory	On wheel Stand/ Trolley

<b>24 inches AIO Desktop Computer</b>		
Processor type	11th Generation Intel Core i7	
Chipset	Integrated in the processor	
Memory speed	2666 MHz	
RAM	32 Gb	
Network	One RJ-45 port	
Audio	Audio-out port	
	Internal audio interface	High definition audio interface
	Number of speakers	2
	Stereo conversion	Yes
HDD	1 TB or more	
Display	Type	Full High Definition (FHD)
	panel technology	Wide Viewing Angle (WVA)
	panel native resolution	1920x1080
	Luminance	250 nits
Graphics	8 Gb	

<b>Active Speaker: Set of 2</b>	
Frequency Response	70 Hz to 20 kHz
Crossover Frequency	2.8 kHz
Amplifier Power	100 dB
LF Driver	4.5"
HF Driver	1" Silk Dome
Input Impedance	10 K $\Omega$
Volume Range	A-Type Taper
MF Control	Variable (-6 to +6 dB, center 100 Hz)
HF Control	Variable (-6 to +6 dB, center 10 kHz)
Protection	RF interference Output-current limiting Over-temperature Turn-on/off transient Subsonic filter External mains fuse

<b>Headset-Professional</b>	
Headphones	
Type	Closed-back
Frequency Response	20 Hz - 20,000 Hz
Impedance	35 $\Omega$

Sound Pressure Level	94.4 dB/mW
Maximum Input Power	1,000 mW
<b>Microphone</b>	
Type	Electret Condenser Microphone
Polar Pattern	Uni Polar
Frequency Response	250 Hz - 15,000 kHz
Sensitivity	-39 dB (0 dB = 1 V/Pa)
Maximum Input SPL	100 dB SPL

<b>External Hard disk</b>	
Capacity	2 Tb
Compatible Devices	Laptop, Desktop
Hard Disk Interface	USB 2.0 or more

<b>Microphone: Lapel cordless (XLR)</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz

## 9. LECTURE THEATERS 3 NOS

<b>Full HD PTZ camera</b>	
Sensor	1/2.5" type 4K MOS or better
Zoom	10x or more
Video Format	2160p: 29.97 / 25 1080p: 59.94 / 50 / 29.97 / 25 720p: 59.94 / 50 1080i: 59.94 / 50
Min ILLUMINATION	3 lx
Video Output Interface	3G-SDI / HDMI / Ethernet

IP Protocol	NDI®   HX / RTSP / RTMP / RTMPS / SRT
Control Interface	RS-232 / RS-422 / Ethernet / Remote
White Balance	Auto / Manual
Exposure Control	Auto / Manual

<b>8 Port Manageable PoE+ Ethernet Switch</b>	
Primary Port Speed	1 Gigabit
Number of Ports	12 (8x 1G PoE+, 2x SFP)
PoE Ports / Budget	8 PoE+ (30W/port), 125W Budget
IGMP Support	Enhanced
Jumbo Frame Support	Yes, up to 12kb
PoE+ Ports (802.3at)	8
CPU	ARM A9 1.25Ghz 32-Bit 2GB RAM
Code storage (flash)	256 MB
Dedicated AV Features	Dante, Q-SYS, AES67

<b>Sound Mixer: 8 input, USB Output</b>		
Inputs	Mono (Mic/line)	4
	Mono/ Stereo (Mic/line)	0
	Stereo (line)	3
Outputs	STEREO OUT	2
	MONITOR OUT	1
	PHONES	1
	Aux Send	1
	Group Out	0
USB Audio 2 IN / 2 OUT 24bit / 192kHz	Yes	
Phantom Power Voltage	+48 V	
Crosstalk	-83 dB	

<b>Microphone: (USB )</b>	
CONNECTION TYPE	USB-C
TRANSDUCER TYPE	Condenser
POLAR PATTERN	Cardioid
Frequency Response	30 - 15,000 Hz
Power supply	USB 5V DC)
Sample Rate	44.1 kHz/48 kHz/96 kHz/192 kHz
Headphone Output Power	10 mW @ 16 ohms
Accessories Required	Pivoting stand mount for 5/8"-27 threaded stands, tripod desk stand, 2 m (6.6') USB-C to USB-C cable (USB On-The-Go Compliant), 2 m (6.6') USB-C to USB-A cable

<b>Microphone: Wired table-top (XLR)</b>	
Connector	XLR-3
Frequency response (Microphone)	40 - 16000 Hz
Sensitivity in free field, no load (1kHz)	2,7 mV/Pa
Nominal impedance	350 Ω
Required Accessory	microphone clip, Small Mic Stand for Table

<b>Microphone: Handheld Wireless (XLR) with Stand</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz

<b>LED Lights, 60 watts each with ceiling mount and safety chain</b>	
LED Colour	5600K/3200K
Panel Size	12x12 inch
Control	Compatible Dimmer
Required Accessories	Compatible light Stand, Leaf Barn Door

<b>Video wall of approximate size 6x8 (w x h) feet</b>	
Native resolution	1920 x1080
Bezel size	0.88
Combination	2x2 with 55" display Size
Signal inputs	2 x HDMI, DisplayPort ,DVI
Control inputs	LAN/RS-232
Controller:	8 HDMI inputs and 8 output controller with REDUNDANT POWER SUPPLY or Equivalent

<b>24 inches AIO Desktop Computer</b>		
Processor type	11th Generation Intel Core i7	
Chipset	Integrated in the processor	
Memory speed	2666 MHz	
RAM	32 Gb	
Network	One RJ-45 port	
Audio	Audio-out port	
	Internal audio interface	High definition audio interface
	Number of speakers	2
	Stereo conversion	Yes
HDD	1 TB or more	
Display	Type	Full High Definition (FHD)
	panel technology	Wide Viewing Angle (WVA)
	panel native resolution	1920x1080
	Luminance	250 nits
Graphics	8 Gb	

<b>Active Speakers: Set of 4</b>	
Frequency Response	70 Hz to 20 kHz
Crossover Frequency	2.8 kHz
Amplifier Power	100 dB
LF Driver	4.5"
HF Driver	1" Silk Dome
Input Impedance	10 K $\Omega$
Volume Range	A-Type Taper
MF Control	Variable (-6 to +6 dB, center 100 Hz)
HF Control	Variable (-6 to +6 dB, center 10 kHz)
Protection	RF interference Output-current limiting Over-temperature Turn-on/off transient Subsonic filter External mains fuse



<b>Headset- Professional</b>	
<b>Headphones</b>	
Type	Closed-back
Frequency Response	20 Hz - 20,000 Hz
Impedance	35 Ω
Sound Pressure Level	94.4 dB/mW
Maximum Input Power	1,000 mW
<b>Microphone</b>	
Type	Electret Condenser Microphone
Polar Pattern	Uni Polar
Frequency Response	250 Hz - 15,000 kHz
Sensitivity	-39 dB (0 dB = 1 V/Pa)
Maximum Input SPL	100 dB SPL

<b>External Hard disk</b>	
Capacity	2 Tb
Compatible Devices	Laptop, Desktop
Hard Disk Interface	USB 2.0 or more

<b>Microphone: Lapel cordless (XLR)</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz

<b>17 inches Laptop Computer</b>	
Screen Size	17.3" FHD
RAM	16 GB
Processor	AMD Ryzen™ R7/ Intel® Core™ i7
Storage	1 TB SSD
Graphics Card	NVIDIA RTX 3050-Ti 4Gb

## 10. CONFERENCE ROOM

<b>Full HD PTZ camera</b>	
Sensor	1/2.5" type 4K MOS or better
Zoom	10x or more
Video Format	2160p: 29.97 / 25 1080p: 59.94 / 50 / 29.97 / 25 720p: 59.94 / 50 1080i: 59.94 / 50
Min ILLUMINATION	3 lx
Video Output Interface	3G-SDI / HDMI / Ethernet
IP Protocol	NDI®   HX / RTSP / RTMP / RTMPS / SRT
Control Interface	RS-232 / RS-422 / Ethernet / Remote
White Balance	Auto / Manual
Exposure Control	Auto / Manual

<b>8 Port Manageable PoE+ Ethernet Switch</b>	
Primary Port Speed	1 Gigabit
Number of Ports	12 (8x 1G PoE+, 2x SFP)
PoE Ports / Budget	8 PoE+ (30W/port), 125W Budget
IGMP Support	Enhanced
Jumbo Frame Support	Yes, up to 12kb
PoE+ Ports (802.3at)	8
CPU	ARM A9 1.25Ghz 32-Bit 2GB RAM
Code storage (flash)	256 MB
Dedicated AV Features	Dante, Q-SYS, AES67

<b>Sound Mixer: 8 input, USB Output</b>		
Inputs	Mono (Mic/line)	4
	Mono/ Stereo (Mic/line)	0
	Stereo (line)	3
Outputs	STEREO OUT	2
	MONITOR OUT	1
	PHONES	1
	Aux Send	1
	Group Out	0
USB Audio 2 IN / 2 OUT 24bit / 192kHz	Yes	
Phantom Power Voltage	+48 V	
Crosstalk	-83 dB	

<b>Microphone: Wired table-top (XLR)</b>	
Connector	XLR-3
Frequency response (Microphone)	40 - 16000 Hz
Sensitivity in free field, no load (1kHz)	2,7 mV/Pa
Nominal impedance	350 Ω
Required Accessory	microphone clip, Small Mic Stand for Table

<b>Microphone: Handheld Wireless (XLR) with Stand</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz

<b>LED Lights, 60 watts each with ceiling mount and safety chain</b>	
LED Colour	5600K/3200K
Panel Size	12x12 inch
Control	Compatible Dimmer
Required Accessories	Compatible light Stand, Leaf Barn Door

<b>Video wall of approximate size 6x8 (w x h) feet</b>	
Native resolution	1920 x1080
Bezel size	0.88
Combination	2x2 with 55" display Size
Signal inputs	2 x HDMI, DisplayPort ,DVI
Control inputs	LAN/RS-232
Controller:	8 HDMI inputs and 8 output controller with REDUNDANT POWER SUPPLY or Equivalent

<b>24 inches AIO Desktop Computer</b>		
Processor type	11th Generation Intel Core i7	
Chipset	Integrated in the processor	
Memory speed	2666 MHz	
RAM	32 Gb	
Network	One RJ-45 port	
Audio	Audio-out port	
	Internal audio interface	High definition audio interface
	Number of speakers	2
	Stereo conversion	Yes
HDD	1 TB or more	
Display	Type	Full High Definition (FHD)
	panel technology	Wide Viewing Angle (WVA)
	panel native resolution	1920x1080
	Luminance	250 nits
Graphics	8 Gb	

<b>Active Speakers: Set of 4</b>	
Frequency Response	70 Hz to 20 kHz
Crossover Frequency	2.8 kHz
Amplifier Power	100 dB
LF Driver	4.5"
HF Driver	1" Silk Dome
Input Impedance	10 K $\Omega$
Volume Range	A-Type Taper
MF Control	Variable (-6 to +6 dB, center 100 Hz)
HF Control	Variable (-6 to +6 dB, center 10 kHz)
Protection	RF interference Output-current limiting Over-temperature Turn-on/off transient Subsonic filter External mains fuse

<b>Headset- Professional</b>	
Headphones	
Type	Closed-back
Frequency Response	20 Hz - 20,000 Hz
Impedance	35 $\Omega$
Sound Pressure Level	94.4 dB/mW
Maximum Input Power	1,000 mW
Microphone	
Type	Electret Condenser Microphone
Polar Pattern	Uni Polar
Frequency Response	250 Hz - 15,000 kHz
Sensitivity	-39 dB (0 dB = 1 V/Pa)
Maximum Input SPL	100 dB SPL

<b>External Hard disk</b>	
Capacity	2 Tb
Compatible Devices	Laptop, Desktop
Hard Disk Interface	USB 2.0 or more

<b>Microphone: Lapel cordless (XLR)</b>	
Carrier frequency range	500 - 865 MHz
T.H.D. at 1 kHz	typ. 0.8%
Signal/noise ratio	typ. 105 dB(A)
Audio bandwidth	40 - 20,000 Hz

<b>15 inches Laptop Computer</b>	
Screen Size	15.6" FHD
RAM	16 GB
Processor	AMD Ryzen™ R7/ Intel® Core™ i7
Storage	1 TB SSD
Graphics Card	NVIDIA RTX 3060- 6Gb

## **SECTION III**

### **ENCLOSURES**

#### **CONTENT**

- A. CHECKLIST
- B. PROPOSAL SUBMISSION LETTER
- C. PARTICULARS OF THE BIDDER PROFORMA
- D. DETAILS OF WORK EXPERIENCE
- E. FINANCIAL STRENGTH OF THE BIDDER
- F. SELF-DECLARATION FOR NON BLACK LISTING
- G. UNDERTAKING REGARDING PAYMENT OF GST/ FILING OF  
GST RETURN

## A. CHECK LIST

**Please ensure that following documents should be enclosed alongwith the bid proposal**

1. Go through the tender documents very carefully and thoroughly.
2. Prepare separate technical and commercial bids.
3. Ensure submission of required documents and details alongwith technical bid. The documents to be enclosed are:-
  - (i) Proof of submission of Non Refundable **Tender fee(Form Fee)**
  - (ii) Submission of **EMD** for RFP quoted by bidder
  - (iii) Activity wise work schedule.
  - (iv) Copy of the registration certificate under Indian Company Act.
  - (v) Duly filled forms as enclosed in tender document.
  - (vi) Copy of the tender document duly signed and stamped by the bidder in support of having read, understood and complied with the requirements of the tender document.
  - (vii) Details of Work Experience. Details of similar works executed along with approximate value of the projects in chronological order.
  - (viii) Any other details and information of relevance in support of past experiences of the bidder.
  - (ix) Financial Strength of the bidder.
  - (x) Details BOQ without price with offered Make and Model.
  - (xi) PAN, GST, ISO Certificates, Last 3 Years Audited Balance Sheet, Last 3 Years Turnover Certificate, ITR Return other relevant documents.
  - (xii) Self-Declaration for Non- Blacklisting Undertaking
  - (xiii) Undertaking regarding payment of GST/ Filling of GST Return.
  - (xiv) Authorization Certificate to Sign the Bid.
  - (xv) An Authorization Letter from OEM (MAF) should be submitted for all important Items.
  - (xvi) Compliance from OEM on their letter head for all important items.
  - (xvii) Compliance from Bidder on their letter head for all items.

4. **Site visit is mandatory.** The bidder must visit the site to observe the conditions of the place where project need to be executed. No extra claim on consequences of ignorance on ground of insufficient descriptions will not be allowed at the later date. Bidder should inform BECIL about the site visit at least one day in advance. **Site visit certificate must be attached with the bid otherwise bid will stand rejected.**
5. No cost details are to be included in the technical bid under any circumstances.
6. Solution as per requirement of RFP for assessment of understanding of the concept by bidder.



## **B. PROPOSAL SUBMISSION LETTER**

**[ON BIDDER'S LETTER HEAD]**

Bidder Ref. No. ....

Dated : .....

To,  
The Chairman and Managing Director,  
Broadcast Engineering Consultants India Limited,  
56-A/17, Block-C, Sector-62, Noida-201307 (U.P.)

**Subject: Submission of the Proposal for <insert Tender Name><Tender No.>**

Dear Sir,

We, the undersigned, offer to provide services to BECIL with reference to your Tender <insert Tender Name> dated <insert Tender date> and our Proposal. We are hereby submitting our proposal under the following sections on e-Tender:

i. Section 1 : Technical Bid

ii. Section 2 : Financial Bid

We hereby declare that all the information and statements made in this proposal are true and accept that any misinterpretation contained in it may lead to our disqualification.

We declare that we confirm to each and every clause of the tender document and shall abide by all the terms and conditions of all the volumes of this tender document. We would hold the terms of our proposal valid for the number of days as stipulated in the tender document.

Yours sincerely,  
(Authorized Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Date:

## C. PARTICULARS OF THE BIDDER

1.	Name of company	
2.	Office Address /Telephone No / Fax No / email id / website	
3.	Year of establishment	
4.	Status of the Company	
5.	Name of Directors	i) ii) iii)
6.	Names of principle person concerned with this work with title and Telephone No / Fax/ Email Id, Etc.	
7.	Whether registered with the registrar of companies /registrar of firms. If so, mention number and date.	i) ii) iii)
8.	In case of change of Name of the Firm, former Name / Names and year/ years of establishment:	
9.	Whether registered for sales tax purposes. If so, mention number and date. Furnish also copies of sales tax clearance certificate.	
10.	Whether an assessee of income tax. If so, mention permanent account number. Furnish copies of income tax clearance certificate.	
11	State Annual turnover of the company  Furnish copies of audited balance sheet and profit & loss account (audited) for the last three years.	

12	Particulars and place of similar type of works done in a single order. (Furnish details in a separate sheet and enclose copy of the employers certificate)	
13	Specify the maximum value of single work executed in the past three years.	
14	Status and details of disputes/ litigation/ arbitration, if any.	

Signature of Authorized Signatory

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

Mobile: \_\_\_\_\_

Email ID: \_\_\_\_\_

## D.DETAILS OF WORK EXPERIENCE

### PARTICULARS OF SIMILAR WORKS EXECUTED

S. No	Name of project with address	Short Description of work executed	Date of Award of work	Date of Completion of work	Name and address of Client with contact no.	Value of work executed

Signature of Authorized Signatory

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

Mobile: \_\_\_\_\_

Email ID: \_\_\_\_\_

## E. FINANCIAL STRENGTH OF THE BIDDER

S. No.	Last 3 Financial Year	Net -Worth Status (Positive / Negative)	Whether Profitable (yes / No.)	Annual Profit After Tax. (In INR)	Overall Annual Turnover (In INR)
1					
2					
3					

(Note : Statutory Auditor's / Chartered Accountant Certificate should be submitted alongwith proposal)

Signature of Authorized Signatory

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

Mobile: \_\_\_\_\_

Email ID: \_\_\_\_\_

## F. SELF-DECLARATION FOR NON BLACK LISTING

[ON BIDDER'S LETTER HEAD]

Bidder Ref. No. ....

Dated : .....

To,  
The Chairman and Managing Director,  
Broadcast Engineering Consultants India Limited,  
56-A/17, Block-C, Sector-62, Noida-201307 (U.P.)

We, M/s. ----- hereby declare that the firm/company namely M/s. -----, as on the date of bid submission, has not been blacklisted or debarred by any of the Central Government or State Government or any organization under Central/ State Government or any Statutory Authority, or any Public- Sector Undertaking.

M/s ..... has not been found guilty of any criminal offence by any court of law in India or abroad.

M/s ....., its directors and officers have not been convicted of any criminal offence related to their professional conduct or the making of false statement or misrepresentations as to their qualifications to enter into procurement contract within a period of three years preceding the commencement of the procurement process or have not been otherwise disqualified pursuant to debarment proceedings.

Yours faithfully

For,

Signature of Authorized Signatory

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

Mobile: \_\_\_\_\_

Email ID: \_\_\_\_\_



## G.UNDER TAKING REGARDING PAYMENT OF GST/ FILING OF GST RETURN

Ref.....

Date .....

To,

Broadcast Engineering Consultants India Limited  
14-B, I. P. Estate, Ring Road  
New Delhi-110002

**Kind attn.:** Shri Awadesh Pandit, GM (F&A)

**Subject: Undertaking regarding Payment of GST/ Filing of GST Return**

Dear Sir,

This is in connection to the works awarded by M/s Broadcast Engineering Consultants India Limited (BECIL), we hereby undertake that we will comply with Goods and Services Tax 2017 and Various Rules Relating to GST Act, 2017(herein after referred to as GST Act and Rules) wherever we are obliged to comply with the GST Act and GST Rules.

We further hereby undertake that we will issue proper **"Tax Invoice"** and/or any other Relevant Document as required under GST Act and Rules. We will furnish appropriate GST return and pay GST as required under GST Act and Rules on timely basis and will provide GST credit on timely basis through GST Portal (and/or by any other means as provided by GST Act and Rules).

We hereby certify & undertake that we will not alter, delete or modify the invoices and other details uploaded at GST Portal unless approved by BECIL in writing.

We also hereby certify & undertake that we indemnify BECIL on account of any loss of GST input credit as well as any interest, penalty, demands or other costs, expenses suffered by BECIL because of any failure on our part to file appropriate Return on time and/or pay Tax to Government/Appropriate Authority.

In case we do not make payment the tax/interest/penalty/other expenses etc. on demand raised by Government/Tax Authorities due to default/delay on our part/action, we also authorize BECIL to forfeit/deduct from security held by BECIL, equivalent amount of interest/penalty/tax etc. for the amount so withheld.

Yours faithfully

For,

Signature of Authorized Signatory on behalf of Agency

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

Mobile: \_\_\_\_\_  
 Email ID: \_\_\_\_\_

**Ref No.:**

**Date:**

**TO WHOM SO EVER IT MAY CONCERN**

It is to certify that the Rs. \_\_\_\_\_/- paid for the GST for  
 \_\_\_\_\_. The detail of invoice with payment of GST as below :

Sr. No.	BECIL Bill No. /Date	Basic Value of Invoice (Excluding Tax)	GST Amount	Total - including Tax (Rs.)	Total Tax Paid	Challan No. /Date
I	II	III	IV	V (III+IV)		
1			-	-	-	
2			-	-	-	
3			-	-	-	
4			-	-	-	
	Total (Rs.)	-	-	-	-	

Director / Proprietor

Place: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Mobile: \_\_\_\_\_  
 Email ID: \_\_\_\_\_