

## **Index for Additional Terms & Conditions Documents**

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**NOTICE INVITING TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING  
OF AUDIO VISUAL EQUIPMENT**

**CORRIGENDUM-II**

<b>TENDER CLAUSE NO.</b>	<b>In place of</b>	<b>To be read as</b>
Unique ID :DSPLY75'' (S.No 1)	HDMI 2.0 X 4 IN	HDMI 2.0 X 3 IN
	No signal Power Off	No signal power off/Sleep Mode
	Optional Windows and Android OPS support	OPS ( with Windows or android OS support ) / SBM slot is mandatory on Day 1 for future upgradation. OEM to ensure that any applications that IIT Tirupati wishes to run on the OPS/SBM should be supported seamlessly by the OEM without any additional permissions or changes/customisation required from IIT end.
Unique ID : DSPLY65'' (S.No 2)	No signal Power Off	No signal power off/Sleep Mode
	Optional Windows and Android OPS support, USB Locking system for security. Built in Signage and Basic content Management Solution.	OPS ( with Windows or android OS support ) / SBM slot is mandatory on Day 1 for future upgradation. OEM to ensure that any applications that IIT Tirupati wishes to run on the OPS/SBM should be supported seamlessly by the OEM without any additional permissions or changes/customisation required from IIT end.
Unique ID : DSPLY55'' (S.No 3)	No signal Power Off	No signal power off/Sleep Mode
	Optional Windows and Android OPS support, USB Locking system for security. Built in Signage and Basic content Management Solution.	OPS ( with Windows or android OS support ) / SBM slot is mandatory on Day 1 for future upgradation. OEM to ensure that any applications that IIT Tirupati wishes to run on the OPS/SBM should be supported seamlessly by the OEM without any additional permissions or changes/customisation required from IIT end.
Unique ID : INTR MNTR-24'' (S.No 5)	On site OEM Warranty (Year)	Removed. Refer terms and conditions in the tender document. for warranty.
Unique ID : MNTR-27'' (S.No 6)	Certifications & Standards: CB, CE, UKCA, TUV/GS, cTUVus, FCC-B, CAN ICES	Certifications & Standards: CB, CE, UKCA, TUV/GS, cTUVus, FCC-B, CAN ICES, UL/BIS
Unique ID : 5200LSPROJ	3LCD Panel	3 LCD/DLP Panel

(S.No 7)	5,200 lumens or higher	5000 Lumens or higher
	Throw Ratio: 1.09~1.77:1	Throw Ratio: 1.09~1.77:1: +/- 20% of tolerance
	6 point image correction	6 point image correction/key stone correction
Unique ID : 6200LSPROJ (S.No 8)	3LCD panel	3 LCD/DLP Panel
	6,200 lumens or higher	6000 Lumens or higher
	Throw Ratio: 1.09~1.77:1	Throw Ratio: 1.09~1.77:1: +/- 20% of tolerance
	6 point image correction	6 point image correction/Key Stone correction
Unique ID : 7000LSPROJ (S.No 9)	3LCD panel	3 LCD/DLP Panel
	Throw Ratio: 1.09~1.77:1	Throw Ratio 1.09~1.77:1: +/- 20% of tolerance:
	6 point image correction	6 point image correction/key stone correction
Unique ID : CAM12X (S.No 1)	USB Interfaces: 1 x USB 3.0: type B female jack, 1 x USB 2.0: type A female jack	USB Interfaces: 1 x USB 3.0: type B female jack
Unique ID : CAM20X (S.No 2)	USB Interfaces: 1 x USB 3.0: type B female jack, 1 x USB 2.0: type A female jack	USB Interfaces: 1 x USB 3.0: type B female jack
Unique ID : SW2X1 (S.No 1)	Up to 32 channels of digital stereo uncompressed signals for supporting studio-grade surround sound	16 channels or above of digital stereo uncompressed signals for supporting studio-grade surround sound
Unique ID : REC (S.No 9)	QuickTime .MOV	QuickTime .MOV, MP4, MPEG
Unique ID : DSPI/O16 (S.No 12)	24 Channel Audio & Control processor with minimum 16 mic/line inputs & 8 line level audio outputs, minimum 16 channels of AEC, 16x16 GPIO ports	16 Channel Audio & Control processor with minimum 16 mic/line inputs & 8 line level audio outputs, minimum 16 channels of AEC, 16x16 GPIO ports
Unique ID : LPL-MIC (S.No 1)	Single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies	Single receiver with minimum or more than 40 MHz bandwidth with 516 to 648 MHz selectable frequencies, fully tunable in a stable UHF range.
Unique ID : HNDHLD-MIC (S.No 2)	Minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations	Minimum or more than 40 MHz bandwidth with 516 to 648 MHz selectable frequencies, fully tunable in a stable UHF range.
Unique ID : HDWRN-MIC (S.No 2)	Minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations	Minimum or more than 40 MHz bandwidth with 516 to 648 MHz selectable frequencies, fully tunable in a stable UHF range.
Unique ID : HDMIRX (S.No 8)	Old Spec	New Spec

**New Spec for HDMIRX**

HDMIRX	
Supply Installation Testing Commissioning of 4K HDR HDMI Receiver with RS-232 & IR over Long-Reach HDBaseT	
INPUTS	1 HDBT: On an RJ-45 connector
OUTPUTS	1 HDMI: On a female HDMI connector
PORTS	1 RS-232: On a 3-pin terminal block connector for serial link extension
	1 IR: On a 3.5mm mini jack connector
EXTENSION LINE	Standard Compression
	Up to 40m (130ft) at 4K@60Hz (4:4:4) or 4K@60Hz (4:2:0)
	Up to 70m (230ft) at 4K@60Hz (4:4:4), 4K@60Hz (4:2:0), or full HD (1080p @60Hz 36bpp)
	No Compression Extension: Up to 40m (130ft) at 4K@60Hz (4:2:0)
	Up to 70m (230ft) at full HD (1080p @60Hz 36bpp)
	Standards Compliance: HDBaseT 1.0
Video	Max Data Rate: Up to 18Gbps (6Gbps per graphic channel)
	No Compression Max Resolution: 4096x2160@60Hz (4:2:0) 24bpp
	High Compression Max Resolution: 3840x2160@60Hz (4:4:4) 24bpp
	Standard Compression Max Resolution: 4096x2160@60Hz (4:4:4) 24bpp
	Compliance: HDCP 2.2, HDR 10
USER INTERFACE	Indicators: IN, OUT, LINK and ON LEDs
	Controls: DIP-switches
	300 to 115200 baud rate
EXTENDED IR	20kHz to 100kHz frequency
POWER	Source: 12V DC, 2A
	Consumption: 680mA
ENVIRONMENTAL CONDITIONS	Operating Temperature: 0° to +40°C (32° to 104°F)
	Storage Temperature: -40° to +70°C (-40° to 158°F)
	Humidity: 10% to 90%, RHL non-condensing
STANDARDS COMPLIANCE	Safety: CE, UL
	Environmental: RoHs, WEEE
ENCLOSURE	Type: Aluminum
	Cooling: Convection ventilation
ACCESSORIES	Included: Power adapter, power cord, bracket set

**NOTICE INVITING TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF AUDIO VISUAL EQUIPMENT AS PER THE SPECIFICATIONS QUANTITIES, TERMS AND CONDITIONS OF THE GEM BID DOCUMENT**

**Corrigendum 1**

**Extension of Site Visit: Terms and Conditions Point No.7**

The site visit of the above mentioned tender is extended **up to 18.11.2022.** Before coming for site visit the bidders have to take prior appointment by emailing to [ramesh@iittp.ac.in](mailto:ramesh@iittp.ac.in) with cc to [roshan@iittp.ac.in](mailto:roshan@iittp.ac.in) and [purchase@iittp.ac.in](mailto:purchase@iittp.ac.in). It would be deemed that the bidder has visited the campus and understood the requirement prior to submission of the bid. Bidder needs to submit a certificate (as per the attached format) confirming that site visit has been completed with the signature of the concerned person from IIT Tirupati along with the bid documents.

**Critical Dates of Tender:**

SL NO	PARTICULARS	DATE	TIME
01	ONLINE PUBLICATION/DOWNLOAD OF TENDER	28.10.2022	15.00 hrs
02	CLARIFICATIONS START DATE	28.10.2022	15.00 hrs
03	CLARIFICATIONS END DATE	04.11.2022	18.00 hrs
04	UPLOADING OF CORRIGENDUM/CLARIFICATIONS AFTER THE RECEIPT OF QUERIES (IF ANY)	09.11.2022	17.00 hrs
05	BID SUBMISSION START DATE	10.11.2022	10.00 hrs
06	BID SUBMISSION DEADLINE	19.12.2022	16.00 hrs
07	TECHNICAL BID OPENING	19.12.2022	16.30 hrs
08	OPENING OF THE FINANCIAL BID	To be announced later	
<ul style="list-style-type: none"> <li>• QUERIES RELATED TO THE TENDER DOCUMENT MAY BE FORWARDED TO <a href="mailto:ramesh@iittp.ac.in">ramesh@iittp.ac.in</a> with cc to <a href="mailto:roshan@iittp.ac.in">roshan@iittp.ac.in</a> and <a href="mailto:purchase@iittp.ac.in">purchase@iittp.ac.in</a> AS PER THE FORMAT PROVIDED IN THE ANNEXURE-IX BEFORE THE CLARIFICATIONS END DATE. FURTHER QUERIES AFTER <b>04.11.2022@18.00</b> HRS WILL NOT BE CONSIDERED.</li> </ul>			

**Terms and Conditions: AV for Classrooms**

1. OEMs for all main components of the tender - displays, projectors, video controllers, video switchers, microphones, speakers, mixers, audio DSP should have direct presence in India for a minimum period of 3 years prior to the date of floating the tender. Proof of presence in the form of registered office in India should be submitted along with the bid.
2. OEMs for all main components of the tender should have a direct local service center in the South part of India. Proof in the form of registration of service center/any other statutory proof confirming presence of direct service center should be submitted along with the bid.
3. OEMs for all main components should have already successfully installed their products in at least 5 CFTIs across India for a minimum period of 1 year prior to the date of floating of tender. Proof in the form of Purchase orders/completion certificates from the end customer along with contact details of the end customer should be submitted along with the bid.
4. Additional criteria for displays, projectors, audio and control devices:
  - 4(a) All professional LED display models quoted should be from the same OEM
  - 4(b) All projector models quoted for the complete requirement should be from the same OEM
  - 4(c) All audio output devices - speakers, mixers and DSP should be from the same OEM
  - 4(d) All video camera models quoted for students and lecturers cameras should be from the OEM
  - 4(e) All control and switching devices should be from the same OEM
5. 3 years warranty from the OEM for all the items. OEM warranty confirmation on OEM letterhead to be submitted along with invoices at the time of delivery and installation.
6. One AV engineer is required to be deputed at IIT Tirupati by the bidder for a period of 3 years for the testing, operation and maintenance including troubleshooting. The minimum qualification requirements are as follows:
  - 6(a) Candidate should have completed Diploma / B.E. in EE/ECE with minimum 3 years of experience in testing, maintenance and troubleshooting of AV equipment.
  - 6(b) The working hours for the AV engineer would be from Monday to Saturday (9.00 AM to 6.00 PM).
  - 6(c) In case of leave, an alternate engineer needs to be replaced until the concerned resident engineer's arrival.
  - 6(d) The curriculum vitae of the resident engineer needs to be attached while bidding.
  - 6(e) No accommodation or any additional payment will be provided by IIT Tirupati to the resident engineer.
7. Interested bidders have to do a site visit and physical survey of the different classrooms in the IIT Tirupati campus and then quote for cabling and any additional items required accordingly. It is advisable that site visit is done by the bidder with their technical experts. Any items which are not mentioned in the BoQ but required to meet the IIT technical functionality requirements need to be included and listed in the offer. The site visit needs to be completed **before 18.11.2022** from the date of publishing of the tender. Before coming for site visit the bidders have to take prior appointment by emailing to [ramesh@iittp.ac.in](mailto:ramesh@iittp.ac.in) with cc to [roshan@iittp.ac.in](mailto:roshan@iittp.ac.in) and [purchase@iittp.ac.in](mailto:purchase@iittp.ac.in). It would be deemed that the bidder has visited the campus and understood the requirement prior to submission of the bid. Bidder needs to submit a certificate (as per the attached format) confirming that site visit has been completed with the signature of the concerned person from IIT Tirupati along with the bid documents.

8. Any additional items required in addition to the BoQ to meet technical functional requirements will be supplied and installed at no additional cost to IIT Tirupati on their company letterhead.

9. In case the bidders require any clarification regarding the tender documents, [ramesh@iittp.ac.in](mailto:ramesh@iittp.ac.in) with cc to [roshan@iittp.ac.in](mailto:roshan@iittp.ac.in) and [purchase@iittp.ac.in](mailto:purchase@iittp.ac.in) before **04.11.2022@18.00 hrs** as per the format given in the Annexure.

10. The percentage of local contents needs to be evaluated overallly.

## 11. BID EVALUATION

- I) **Stage-I Evaluation (Pre-qualification criteria):** In this stage, the received bids will be evaluated by the committee as per the eligibility criteria, terms and conditions of the tender. Only the shortlisted bidders in this stage will be informed for a demo of the AV equipment. The shortlisted bidders will have to give a demo of the following equipment at IIT Tirupati Transit Campus, Yerpedu Mandal, Venkatagiri Road, Tirupati District, Andhra Pradesh – 517619 **within 10 days** of the receipt of mail from IIT Tirupati. No demos requests after **10** will be considered for evaluation.

The bidders are required to bring the following equipments as per the tender document (setup for the hybrid classroom along with DSP processor):

1. Camera for the board and camera for the student
2. Interactive display
3. Microphone and speaker system
4. Projectors Type 1, Type 2 and Type 3 as mentioned in the tender document
5. DSP Processor and Mixer as per the tender document

- II) **Stage-II Evaluation (Demo Evaluation):** In this stage, the expert committee will evaluate the Demo as per the tender specifications, terms, and conditions. Bidders whose demos are accepted by the Institute will be treated as technically qualified bidders for consideration of their price bids.

12. **Payment Terms for hired Manpower:** Monthly payment will be made on certification, Supporting documents from the end user.

## 13. Statutory compliances.

Service provider shall abide by the Minimum wages Act , Contract labor Act etc. as applicable from time to time for man power employed for undertaking the services.

The Service Provider shall abide by and comply with all the relevant laws and statutory requirements covered under various Labour Acts, Minimum Wages Act, Contract Labour (Registration & Abolition) Act 1970, EPF, ESI etc. with regard to the personnel engaged by him for providing support services. It will be the responsibility of the Service Provider to provide details of all manpower and resources deployed.

#### 14. PERFORMANCE SECURITY DETAILS

- a) The successful tenderer will have to deposit the performance security in the form of **Bank Guarantee for 10% of the order value** valid for **39 months** from the date of contract period at the earliest. No interest will be paid by IIT Tirupati on the deposit.
- b) Performance Security will be refunded to the agency, after it duly performs and completes the contract warranty period in all respect.
- c) Performance Security will be forfeited if the firm fails to perform/abide by any of the terms or conditions of the contract.
- d) In case, the firm fails to provide the required services within specified delivery period, the same services will be obtained from open market and the difference of cost, if any, will be recovered from Performance Security or from pending bill(s) of the defaulting firm or from both in case the recoverable amount exceeds the amount of Performance Security.
- e) In case of non-receipt of Security Deposit within the stipulated time, EMD will be converted into Security Deposit and the balance amount will be recovered from the bill submitted for the payment

#### 14. Penalty And Termination.

<b>S No.</b>	<b>Service level agreement</b>	<b>Penalties for non-compliance</b>
(a)	Non completion of the scope of work mentioned in the contract.	Penalize the Service Provider by 0.25% of the Monthly billed amount per incident up to maximum of 5% of monthly bill.
(b)	If the employee is found responsible for any theft, loss of material/ articles and damages	Immediate payment in actual/replacement, equivalent to the value of the article theft/lost/damaged as decided by the buyer depending on the gravity of the act. Also, the manpower responsible to be replaced.
(c)	Cumulative Penalty	Cumulative Penalty cannot exceed more than 10% of the total contract value.

**Format for submitting the queries through email to IIT Tirupati**

QUERIES RELATED TO THE TENDER DOCUMENT MAY BE FORWARDED TO [ramesh@iittp.ac.in](mailto:ramesh@iittp.ac.in) with cc to [roshan@iittp.ac.in](mailto:roshan@iittp.ac.in) & [purchase@iittp.ac.in](mailto:purchase@iittp.ac.in) AS PER THE BELOW FORMAT

**Name of the Tender/Supply:** Notice Inviting Tender for Supply, installation, testing and Commissioning of Audio Visual Equipment.

<b>S No</b>	<b>Tender Clause No</b>	<b>Bidder(s) queries</b>

**Signature and Seal of the Tenderer:**

**Name in Block Letter:**

**Designation:**

**Full Address:**

**Contact no.:**

**Date:**

**Format for Self-Declaration of Site-Visit of IIT Tirupati**

I \_\_\_\_\_(Name of the authorized person) hereby certify that we M/s. \_\_\_\_\_(supplier name) have visited the campus of IIT Tirupati to familiarize with the various element and quality level of services that are required to be rendered.

**Signature and Seal of the Tenderer:**

**Name in Block Letter:**

**Designation:**

**Full Address:**

**Contact no.:**

**Date:**

**Countersign by IIT Tirupati Officials**

**Name of the IIT Tirupati Employee:**

**Designation:**

**Date**

## CHECKLIST FOR BIDDERS TO BE SUBMITTED IN DULY FILLED AND SIGNED

Bid Sl. No.	Name of the Document	Document Particulars	Submitted (Yes/No)	Page No. of the attached Document
1.	Bid security Declaration			
2.	Valid Tender Fee / EMD Exemption Certificate			
3.	PAN Card			
4.	Incorporation/Registration certificate of company			
5.	GST Registration copy			
6.	Company Registered Address and Contact Details			
7.	<b>Experience Criteria:</b> The Bidder or its OEM {themselves or through reseller(s)} should have regularly, manufactured and supplied same or similar Category Products to any Central / State Govt Organization / PSU / Public Listed Company for 3 years before the bid opening date. Copies of relevant contracts to be submitted along with bid in support of having supplied some quantity during each of the year. In case of bunch bids, the primary product having highest value should meet this criterion.			
8.	<b>Bidder Turn Over Criteria:</b> The minimum average annual financial turnover of the bidder during the last three years, ending on 31st March of the previous financial year, should be as indicated in the bid document. Documentary evidence in the form of certified Audited Balance Sheets of relevant periods or a 4 / 7 certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid. In case the date of constitution / incorporation of the bidder is less than 3-year-old, the average turnover in respect of the completed financial years after the date of constitution shall be taken into account for this criteria.			
9.	<b>OEM Turn Over Criteria:</b> The minimum average annual financial turnover of the OEM of the offered product during the last three years, ending on 31st March of the previous financial year, should be as indicated in the bid document. Documentary evidence in the form of certified Audited Balance Sheets of relevant periods or a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid. In case the date of constitution / incorporation of the OEM is less than 3-year-old, the average turnover in respect of the completed financial years after the			

	date of constitution shall be taken into account for this criteria. In case of bunch bids, the OEM of CATEGORY RELATED TO primary product having highest bid value should meet this criterion			
10.	The bidder should be a <u>Class-I/ Class-II suppliers</u> in line with the Public Procurement (Preference to Make in India) Order 2017 No. P-45021/2/2017-PP (BE-II) dated 04 Jun 2020. A Self-Declaration Certificate regarding “Class-I/ Class-II / Non-Local suppliers” for the item to be submitted.			
11.	The bidder should be OEM or OEM authorized Dealers / Channel partners / Distributors of reputed brand having authorization for sales and after sales support. Valid OEM authorization letter is required to participate in this tender.			
12.	Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder registered with the competent authority. <b>The concerned bidder(s) are required to attach the relevant valid Registration Certificate along with the bid for consideration.</b>			
13.	Technical Compliance Statement :			
14.	Purchase Preference: (if applicable) Micro and Small Enterprises (MSEs):			
15.	Purchase Preference: Make in India			
16.	Payment Term: Within 30 days after SITC.			
17.	<b>Warranty: 3 Year onsite warranty from the date of installation at our site.</b>			
18.	<b>Spares and service support:</b> Minimum 5 years from the date of supply			
19.	Delivery & Installation: FOR IIT Tirupati within 114 days			
20.	Bid validity: 90 days from the date of opening of the tender.			
21.	<b>Self-declaration certificate for acceptance</b> and compliance with the Integrity Pact Agreement			
22.	Site Visit Declaration			

**Note:**

- 1) **Submission of tender without the above mentioned documents will lead to rejection/disqualification of the tender.**
- 2) **It is mandatory for the bidder to assign page numbers to the tender documents and the same has to be mentioned in the above checklist.**

Signature of the bidder  
with stamp

## INTEGRITY PACT

**To,**

The Registrar,  
Indian Institute of Technology,  
Tirupati.

**Sub:** Submission of Tender for the Supply, installation, testing and Commissioning of Audio Visual Equipment at Indian Institute of Technology, Tirupati.

**Sir/ Madam,**

I/We acknowledge that the Indian Institute of Technology, Tirupati is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

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

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

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

Yours faithfully,

(Duly authorized signatory of the Bidder)

**INTEGRITY PACT**

This **INTEGRITY PACT** is made and executed at..... on this day of....., 2022

BETWEEN

**The Registrar, Indian Institute of Technology Tirupati**, an autonomous body of the Department of Higher Education, Ministry of Education, Govt, of India having its office located at Yerpedu – Venkatagiri Road, Yerpedu Post, Tirupati District, Andhra Pradesh - 517619 (hereinafter referred to as “**The Principal**” which terms or expression shall, unless excluded by or repugnant to the subject or context, mean and include its successor-in-office, administrators or permitted assignees) of the **First Part**;

And

M/s..... a company incorporated under the Companies Act,.....through its representative/authorized signatory (insert name and designation of the officer) vide resolution dated ..... passed by the Board of Directors, having its office at ..... (hereinafter referred to as “**The Bidder/Contractor**” which term or expression shall, unless excluded by or repugnant to the subject or context, mean and include its successor-in-office, administrators or permitted assignees) of the **Second Part**.

**Preamble**

The Principal intends to award, underlaid down organizational procedures, contract/s for \_\_\_\_\_ The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness / transparency in its relations with its Bidders) and / or Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitors (IEMs) who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

**Section 1 - Commitments of the Principal**

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

- a. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
- b. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
- c. The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there is a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition, can initiate disciplinary actions.

**Section 2 - Commitments of the Bidder(s)/ Contractor(s)**

(1) The Bidder(s)/ Contractor(s) commit themselves to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commit themselves to observe the following principles during participation in the tender process and during the contract execution.

a. The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

b. The Bidders(s)/ Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

c. The Bidder(s)/ Contractor(s) will not commit any offense under the relevant IPC/PC Act; further the Bidders(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d. The Bidder(s)/ Contractors(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly, the Bidder(s)/Contractors(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only

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

f. Bidder(s) /Contractor(s) who have signed the Integrity Pact shall not approach the Courts while representing the matter to IEMs and shall wait for their decision in the matter.

(2) The Bidders)/ Contractors) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

### **Section 3 - Disqualification from tender process and exclusion from future contracts**

If the Bidder(s)/Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put their reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or take action as per the procedure mentioned in the "Guidelines on Banning of business dealings.

### **Section 4 - Compensation for Damages**

(1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/Bid Security.

(2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the Contract value or the amount equivalent to Performance Bank Guarantee.

## **Section 5 - Previous transgression**

- (1) The Bidder declares that no previous transgressions occurred in the last three years with any other Company in any country conforming to the anti-corruption approach or with any Public Sector Enterprise in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per the procedure mentioned in “Guidelines on Banning of business dealings”.

## **Section 6 - Equal treatment of all Bidders / Contractors / Subcontractors**

- (1) In the case of Sub-contracting, the Principal Contractor shall take the responsibility for the adoption of the Integrity Pact by the Sub-contractor.
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- (3) The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate this provisions.

## **Section 7 - Criminal charges against violating Bidder(s) / Contractors) / Subcontractor(s)**

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

## **Section 8 - Independent External Monitor**

- (1) The Principal appoints a competent and credible Independent External Monitor for this Pact after approval by Central Vigilance Commission. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his/her functions neutrally and independently. The Monitor would have access to all Contract documents, whenever required. It will be obligatory for him/her to treat the information and documents of the Bidders/Contractors as confidential. He/she reports to Secretary, MoE.
- (3) The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his/her request and demonstration of a valid interest, unrestricted and unconditional access to their project documentation. The same is applicable to Sub-contractors.
- (4) The Monitor is under contractual obligation to treat the information and documents of the Bidders)/ Contractor(s)/ Sub-contractor(s) with confidentiality. The Monitor has also signed declarations on ‘Non-Disclosure of Confidential Information and of ‘Absence of Conflict of Interest’. In case of any conflict of interest arising at a later date, the IEM shall inform Secretary, D/o Higher Education.
- (5) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- (6) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he/she will so inform the Management of the Principal and request the Management to discontinue or take corrective action,

or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

(7) The Monitor will submit a written report to the Secretary, D/o Higher Education within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

(8) If the Monitor has reported to the Secretary, D/o Higher Education, a substantiated suspicion of an offence under relevant I PC/ PC Act, and the Secretary, MoE has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

(9) The word ‘**Monitor**’ would include both singular and plural.

### **Section 9 - Pact Duration**

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealing.

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

### **Section 10 - Other provisions**

(1) This agreement is subject to Indian Law. The place of performance and jurisdiction is the Office of the Principal, i.e. New Delhi.

(2) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

(3) If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

(4) Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement with their original intentions.

(5) Issues like Warranty / Guarantee etc. shall be outside the purview of IEMs.

(6) In the event of any contradiction between the Integrity Pact and its Annexure, the Clause in the Integrity Pact will prevail.

(7) The actions stipulated in this Integrity Pact are without prejudice to any other legal action(s) that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

**IN WITNESS WHEREOF**, the parties hereunto set their hands and seals and executed this INTEGRITY PACT as of the day/month/year first above written:

For and on behalf of

**THE REGISTRAR,  
Indian Institute Technology Tirupati (First Party)**

SIGNED, SEALED, AND DELIVERED by

**Name:**.....

**Designation:**.....

**Address:**.....

**Authorized Signatory**

For and on behalf of

**M/s. .... (Second Party)**

SIGNED, SEALED AND DELIVERED by

Name \_\_\_\_\_

Designation:.....

Address:.....

**Representative/authorized signatory**

**Vide resolution dated ..... passed by the Board of Directors**

**In the presence of Witness:**

1.

2.

All the items should be supplied, installed, commissioned and tested in various classrooms, rooms as per the below mentioned room wise details.

## Annexure-2 (Equipment details, quantities for classrooms )

### Summary sheet for the classrooms

SI No.		TYPES OF ROOM	DB1	DB 2	LHC	CIF	TOTAL NO OF ROOMS
1	REGULAR CLASS ROOM	40 SEATER	4	0	4	0	8
		60 SEATER	2	5	5	0	12
2	HYBRID CLASS ROOM	40 SEATER	0	0	6	0	6
		60 SEATER	4	4	3	0	11
		120 SEATER	0	0	2	0	2
		90/120 SEATER	1	0	0	1	2
3	SMART CLASS ROOM	60 SEATER	0	0	4	0	4
		90/120 SEATER	0	0	2	0	2
		240 SEATER	0	0	1	0	1
4		Centralised AV Control Room	0	0	1	0	1
5		Mini Studio	0	0	2	0	2
6		Enggining Drawing Room	0	0	1	0	1
7		SUPPLY /INSTALLATION/TESTING/COMMISSIONING CHARGES					1

40 Seater - Regular Class			
Sl. No	Unique ID	Description	Qty
<b>A</b>	<b>Video System</b>		
A1.1	5200LSPROJ	WUXGA (1920 x 1200) , 5200 lumens Laser Projector	1
A1.2	PROJ-CMK	Ceiling mount bracket for projector	1
A1.3	SCRN109"	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	1
A1.4	SW2X1	2x1 4K HDR HDMI Intelligent Auto Switcher	1
A1.5	HDMITX	4K HDR HDMI Transmitter with RS-232 & IR over Long-Reach HDBaseT	1
A1.6	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>B</b>	<b>Installation plates and cables</b>		
B1.1	FLR-BOX	Floor box with 2XPOWER; 2XLAN	1
B1.2	RING-ADPTR	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type-C (M) to HDMI (F)4K@60Hz (4:2:0)	1
B1.3	CAB-HD-6	Premium High-Speed HDMI Cable 1.80m (6ft)	2
B1.4	CAB-HD-10	Premium High-Speed HDMI Cable 3.00m (10ft)	1
B1.5	CAB-CAT6	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum
B1.6	PODIUM	Podium with 24" Monitor mounting provision , Laptop Tray & Storage	1
B1.7	NTWRKSW-8 PORT	8 Port Network Switch	1

60 Seater - Regular Class			
Sl. No	Unique ID	Description	Qty
<b>A Audio System</b>			
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Cardioid condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 dB	1
A1.2	MXR	Digital Mixer with Minimum 8 Mic/Line Inputs (4 XLR, 4 XLR/Jack Combo),	1
A1.3	SF-SPKR30	6.5" Two-way surface speaker, 70/100V transformer with 8 Ω bypass, 130° conical coverage, includes Yoke Mount. Priced individually but must be purchased in pairs.	4
A1.4	AMP2X60	1/2 RU 2 Channel ENERGY STAR amplifier / Stereo operation 60 watts into 8 Ω & 4 Ω, Bridged operation 200 watts into 8Ω & 4Ω, and 250 watts into 70v and 100v / 100-240 VAC Operation	1
<b>Sub Total</b>			
<b>B Video System</b>			
B1.1	5200LSPROJ	WUXGA(1920 x 1200) , 5,200 lumens Laser Projector	1
B1.2	PROJ-CMK	Ceiling mount bracket for projector	1
B1.3	SCRN123"	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	1
A1.4	SW2X1	2x1 4K HDR HDMI Intelligent Auto Switcher	1
B1.5	HDMITX	4K HDR HDMI Transmitter with RS-232 & IR over Long-Reach HDBaseT	1
B1.6	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			

<b>C</b>			
<b>Installation plates and cables</b>			
C1.1	<b>FLR-BOX</b>	Floor box with 2XPOWER; 2XLAN	1
C1.2	<b>RING-ADPTR</b>	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type-C (M) to HDMI (F)4K@60Hz (4:2:0)	1
C1.3	<b>CAB-HD-6</b>	Premium High-Speed HDMI Cable 1.80m (6ft)	2
C1.4	<b>CAB-HD-10</b>	Premium High-Speed HDMI Cable 3.00m (10ft)	1
C1.5	<b>CAB-CAT6</b>	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum
C1.6	<b>CAB-MAD</b>	1 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
C1.7	<b>CAB-SPKR</b>	1 Pair: 16 AWG Speaker Bulk Cable	
C1.8	<b>PODIUM</b>	Podium with 24" Monitor mounting provision , Laptop Tray & Storage	1
C1.9	<b>NTWRKSW-8 PORT</b>	8 Port Network Switch	1

40 Seater – Hybrid Class			
Sl. No	Unique ID	Description	Qty
<b>A</b>	<b>Audio System</b>		
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Cardioid condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 dB with 3.5 mm to USB Digital Audio Adapter	1
<b>Sub Total</b>			
<b>B</b>	<b>Video System</b>		
B1.1	INTR MNTR-24"	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1
B1.2	5200LSPROJ	WUXGA(1920 x 1200) , 5,200 lumens Laser Projector	1
B1.3	PROJ-CMK	Ceiling mount bracket for projector	1
B1.4	SCRN109"	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	1
B1.5	SW2X1	2x1 4K HDR HDMI Intelligent Auto Switcher	1
B1.6	HDMITX-A	4K HDR HDMI Transmitter with Ethernet, RS-232, IR, ARC & Stereo Audio Routing over PoE Extended-Reach HDBaseT 2.0	1
B1.7	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>C</b>	<b>Video Conference</b>		
C1.1	CAM20X	PTZ camera features a 20x optical zoom lens plus a 16x digital zoom for extra distance when needed delivering 1080p60 quality at 60 fps with full pan and tilt	1

C1.2	<b>CAM12X</b>	PTZ camera with 12x optical zoom, 1080P60 full HD, USB, HDMI, and IP connections	1
C1.3	<b>CMK-CAM</b>	Ceiling Mount Kit for Camera	2
C1.4	<b>USB-EXT</b>	USB 2.0 PoC Extender Kit over Extended–Reach CAT	2
<b>Sub Total</b>			
<b>D</b>	<b>Control System</b>		
D1.1	<b>BPANEL</b>	6–button PoE and I/O Control Keypad (EU, UK, US)	1
<b>Sub Total</b>			
<b>E</b>	<b>Installation plates and cables</b>		
E1.1	<b>FLR-BOX</b>	Floor box with 2XPOWER; 2XLAN	1
E1.2	<b>RING-ADPTR</b>	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type–C (M) to HDMI (F)4K@60Hz (4:2:0)	1
E1.3	<b>CAB-HD-6</b>	Premium High–Speed HDMI Cable 1.80m (6ft)	2
E1.4	<b>CAB-HD-10</b>	Premium High–Speed HDMI Cable 3.00m (10ft)	1
E1.5	<b>USBAB-10</b>	USB 2.0 A (M) to B (M) Cable 3.00m (10ft)	1
E1.6	<b>USBAB-6</b>	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	5
E1.7	<b>HD-DVI-6</b>	HDMI (M) to DVI (M) Cable1.80m (6ft)	2
E1.8	<b>CAB-CAT6</b>	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum
E1.9	<b>CAB-MAD</b>	1 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.10	<b>PODIUM</b>	Podium with 24” Monitor mounting provision , Laptop Tray & Storage	1
E1.11	<b>NTWRKSW-8 PORT</b>	8 Port Network Switch	1

60 Seater – Hybrid Class			
Sl. No	Unique ID	Description	Qty
<b>A</b>			
<b>Audio System</b>			
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 Db with 3.5 mm to USB Digital Audio Adapter	1
A1.3	MXR	Digital Mixer with Minimum 8 Mic/Line Inputs (4 XLR, 4 XLR/Jack Combo)	1
A1.4	SF-SPKR30	6.5" Two-way surface speaker, 70/100V transformer with 8 Ω bypass, 130° conical coverage, includes Yoke Mount. Priced individually but must be purchased in pairs.	4
A1.5	AMP2X60	1/2 RU 2 Channel ENERGY STAR amplifier / Stereo operation 60 watts into 8 Ω & 4 Ω, Bridged operation 200 watts into 8Ω & 4Ω, and 250 watts into 70v and 100v / 100-240 VAC Operation	1
<b>Sub Total</b>			
<b>B</b>			
B1.1	INTR MNTR-24"	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1
B1.2	5200LSPROJ	WUXGA(1920 x 1200) , 5,200 lumens Laser Projector	1
B1.3	PROJ-CMK	Ceiling mount bracket for projector	1
B1.4	SCRN123"	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	1
B1.5	SW2X1	2x1 4K HDR HDMI Intelligent Auto Switcher	1

B1.6	HDMITX	4K HDR HDMI Transmitter with RS-232 & IR over Long-Reach HDBaseT	1
B1.7	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>C</b>	<b>Video Conference</b>		
C1.1	CAM20X	PTZ camera features a 20x optical zoom lens plus a 16x digital zoom for extra distance when needed delivering 1080p60 quality at 60 fps with full pan and tilt	1
C1.2	CAM12X	PTZ camera with 12x optical zoom, 1080P60 full HD, USB, HDMI, and IP connections	1
C1.2	CMK-CAM	Ceiling Mount Kit for Camera	2
C1.4	USB-EXT	USB 2.0 PoC Extender Kit over Extended-Reach CAT	2
<b>Sub Total</b>			
<b>D</b>	<b>Control System</b>		
1	BPANEL	6-button PoE and I/O Control Keypad (EU, UK, US)	1
<b>Sub Total</b>			
<b>E</b>	<b>Installation plates and cables</b>		
E1.1	FLR-BOX	Floor box with 2XPOWER; 2XLAN	1
E1.2	RING-ADPTR	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type-C (M) to HDMI (F)4K@60Hz (4:2:0)	1
E1.3	CAB-HD-6	Premium High-Speed HDMI Cable 1.80m (6ft)	2
E1.4	CAB-HD-10	Premium High-Speed HDMI Cable 3.00m (10ft)	1
E1.5	USBAB-10	USB 2.0 A (M) to B (M) Cable 3.00m (10ft)	1
E1.6	USBAB-6	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	5
E1.7	HD-DVI-6	HDMI (M) to DVI (M) Cable1.80m (6ft)	2
E1.8	CAB-CAT6	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum

E1.9	CAB-MAD	1 Pair: 16 AWG Speaker Bulk Cable	
E1.10	CAB-SPKR	1 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.11	PODIUM	Podium with 24" Monitor mounting provision , Laptop Tray & Storage	1
E1.12	NTWRKSW-8 PORT	8 Port Network Switch	1

		90 seater in CIF and 120 seater in DB1	
Sl. No	Unique ID	Description	Qty
<b>A</b>	<b>Audio System</b>		
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Cardioid condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 Db with 3.5 mm to USB Digital Audio Adapter	1
A1.2	MXR	Digital Mixer with Minimum 8 Mic/Line Inputs (4 XLR, 4 XLR/Jack Combo)	1
A1.3	SF-SPKR150	6.5" Two-way surface speaker, 70/100V transformer with 8 Ω bypass, 105° conical DMT™ coverage, includes X-Mount™ and weather input cup. Priced individually but must be purchased in pairs.	4
A1.4	AMP2X400	Light weight, class-D professional power amplifier with DSP, 2 channels, 400 watts/ch at 8Ω, 600 watts/ch at 4Ω, total power capacity of 1600 watts.	1
<b>Sub Total</b>			
<b>B</b>			
B1.2	INTR MNTR-24"	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1
B1.3	6200LSPROJ	WUXGA(1920 x 1200) , 6,200 lumens Laser Projector	2
B1.5	PROJ-CMK	Ceiling mount bracket for projector	2
B1.6	SCRN123"	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	2

B1.7	HDMITX	4K HDR HDMI Transmitter with RS-232 & IR over Long-Reach HDBaseT	2
B1.8	SW4X4	4x4 4K HDR HDMI HDCP 2.2 Matrix Switcher with Audio De-embedding	1
B1.9	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>C</b>	<b>Video Conference</b>		
C1.1	CAM20X	PTZ camera features a 20x optical zoom lens plus a 16x digital zoom for extra distance when needed delivering 1080p60 quality at 60 fps with full pan and tilt	1
C1.2	CAM12X	PTZ camera with 12x optical zoom, 1080P60 full HD, USB, HDMI, and IP connections	2
C1.3	CMK-CAM	Ceiling Mount Kit for Camera	3
C1.4	USB-EXT	USB 2.0 PoC Extender Kit over Extended-Reach CAT	3
<b>Sub Total</b>			
<b>D</b>	<b>Control System</b>		
D1.1	BPANEL	6-button PoE and I/O Control Keypad (EU, UK, US)	1
<b>Sub Total</b>			
<b>E</b>	<b>Installation plates and cables</b>		
E1.1	FLR-BOX	Floor box with 2XPOWER; 2XLAN	1
E1.2	RING-ADPTR	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type-C (M) to HDMI (F)4K@60Hz (4:2:0)	1
E1.3	CAB-HD-6	Premium High-Speed HDMI Cable 1.80m (6ft)	3
E1.4	CAB-HD-10	Premium High-Speed HDMI Cable 3.00m (10ft)	1
E1.5	USBAB-10	USB 2.0 A (M) to B (M) Cable 3.00m (10ft)	1
E1.6	USBAB-6	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	8
E1.7	HD-DVI-6	HDMI (M) to DVI (M) Cable1.80m (6ft)	2

E1.8	CAB-CAT6	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum
E1.9	CAB-MAD	1 Pair: 16 AWG Speaker Bulk Cable	
E1.10	CAB-SPKR	1 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.11	PODIUM	Podium with 24" Monitor mounting provision , Laptop Tray & Storage	1
E1.12	NTWRKSW-24 PORT	24 Port Network Switch	1

120 Seater – Hybrid Class			
Sl. No	Unique ID	Description	Qty
A	Audio System		
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Cardioid condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 Db with 3.5 mm to USB Digital Audio Adapter	1
A1.2	MXR	Digital Mixer with Minimum 8 Mic/Line Inputs (4 XLR, 4 XLR/Jack Combo)	1
A1.3	SF-SPKR150	6.5" Two-way surface speaker, 70/100V transformer with 8 Ω bypass, 105° conical DMT™ coverage, includes X-Mount™ and weather input cup. Priced individually but must be purchased in pairs.	4
A1.4	AMP2X400	Light weight, class-D professional power amplifier with DSP, 2 channels, 400 watts/ch at 8Ω, 600 watts/ch at 4Ω, total power capacity of 1600 watts.	1
<b>Sub Total</b>			
B			
B1.2	INTR MNTR-24"	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1
B1.3	6200LSPROJ	WUXGA(1920 x 1200) , 6,200 lumens Laser Projector	2
B1.5	PROJ-CMK	Ceiling mount bracket for projector	2
B1.6	SCRN135'	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	2

B1.7	HDMITX	4K HDR HDMI Transmitter with RS-232 & IR over Long-Reach HDBaseT	2
B1.8	SW4X4	4x4 4K HDR HDMI HDCP 2.2 Matrix Switcher with Audio De-embedding	1
B1.9	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>C</b>	<b>Video Conference</b>		
C1.1	CAM20X	PTZ camera features a 20x optical zoom lens plus a 16x digital zoom for extra distance when needed delivering 1080p60 quality at 60 fps with full pan and tilt	1
C1.2	CAM12X	PTZ camera with 12x optical zoom, 1080P60 full HD, USB, HDMI, and IP connections	2
C1.3	CMK-CAM	Ceiling Mount Kit for Camera	3
C1.4	USB-EXT	USB 2.0 PoC Extender Kit over Extended-Reach CAT	3
<b>Sub Total</b>			
<b>D</b>	<b>Control System</b>		
D1.1	BPANEL	6-button PoE and I/O Control Keypad (EU, UK, US)	1
<b>Sub Total</b>			
<b>E</b>	<b>Installation plates and cables</b>		
E1.1	FLR-BOX	Floor box with 2XPOWER; 2XLAN	1
E1.2	RING-ADPTR	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type-C (M) to HDMI (F)4K@60Hz (4:2:0)	1
E1.3	CAB-HD-6	Premium High-Speed HDMI Cable 1.80m (6ft)	3
E1.4	CAB-HD-10	Premium High-Speed HDMI Cable 3.00m (10ft)	1
E1.5	USBAB-10	USB 2.0 A (M) to B (M) Cable 3.00m (10ft)	1
E1.6	USBAB-6	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	8
E1.7	HD-DVI-6	HDMI (M) to DVI (M) Cable1.80m (6ft)	2

E1.8	CAB-CAT6	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum
E1.9	CAB-MAD	1 Pair: 16 AWG Speaker Bulk Cable	
E1.10	CAB-SPKR	1 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.11	PODIUM	Podium with 24" Monitor mounting provision , Laptop Tray & Storage	1
E1.12	NTWRKSW-24 PORT	24 Port Network Switch	1

60 Seater – Smart Class			
Sl. No	Unique ID	Description	Qty
<b>A</b>	<b>Audio System</b>		
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Cardioid condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 Db with 3.5 mm to USB Digital Audio Adapter	1
A1.2	HNDHLD-MIC	Wireless handled microphone with half-rack receiver in a full-metal housing with intuitive OLED display for full control, Up to 42 MHz bandwidth with 1680 selectable depending on country regulations frequencies, fully tunable in a stable UHF range with control software included for advanced frequency coordination in multi-channel setups. High RF output power 30 mW, a with Squelch 5 to 25 dBµV in steps of 2 dB ,Frequency response 40 to 20,000 Hz, Dynamic range 126 dB(A) ,Pick-up pattern cardioid/super cardioid, switchable with Modulation Wideband FM, and Power supply 12 V DC .	2
A1.3	HDWRN-MIC	UHF Wireless Cardioid condenser Headworn Microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 dB	1
A1.4	GSN-MIC	Gooseneck Microphone with ON/OFF Switch Frequency response (Microphone) 50 Hz - 20 kHz Transducer principle (Microphone) pre polarized condenser microphone Pick-up pattern cardioid Equivalent noise level 26 dB (A) Equivalent noise level weighted as per CCIR 468-3 37 dB Maximum sound pressure level (passive) 130 dB SPL Power supply P12 - P48 V Current consumption 3 mA with RF shielding against intermodulation from wireless equipment/devices with a cardioid polar pattern.	2
A1.5	DSPI/O16	Unified Core with 24 local audio I/O channels, 128x128 total network I/O channels with 8x8 Software-based Dante license included, USB AV bridging, dual LAN ports, POTS and VoIP telephony, 16x16 GPIO, 16 next-generation AEC processors, 1RU	1

A1.6		Q-SYS Core 110 UCI Deployment Software License, Perpetual	1
A1.7		Q-SYS Core 110 Scripting Engine Software License, Perpetual	1
A1.8	SF-SPKR30	6.5" Two-way surface speaker, 70/100V transformer with 8 Ω bypass, 130° conical coverage, includes Yoke Mount. Priced individually but must be purchased in pairs.	4
A1.9	AMP2X60	1/2 RU 2 Channel ENERGY STAR amplifier / Stereo operation 60 watts into 8 Ω & 4 Ω, Bridged operation 200 watts into 8Ω & 4Ω, and 250 watts into 70v and 100v / 100-240 VAC Operation	1
<b>Sub Total</b>			
<b>B Video System</b>			
B1.1	INTR MNTR-24"	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1
B1.2	DSPLY65"	65" diagonal 4K Professional Display - 500 nits	1
B1.3	CMK-DSPLY	Ceiling mount bracket for 65" Display	1
B1.4	5200LSPROJ	WUXGA(1920 x 1200) , 5,200 lumens Laser Projector	1
B1.5	PROJ-CMK	Ceiling mount bracket for projector	1
B1.6	SCRN123"	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	1
B1.8	SW8X8	8x8 4K HDR HDCP 2.2 Matrix Switcher with Analog & Digital Audio Routing	1
B1.9	STREAMSRV	H.264 Video Streaming Encoder and MP4 Recorder	1
B1.10	REC	ProRes 4K Video Recorder- Desktop	1
B1.11	CONVHDMISDI	HDMI to SDI Extension	2
B1.12	DA1X4	1:4 4K HDR HDMI DA	1
B1.13	HDMITX	4K HDR HDMI Transmitter with RS-232 & IR over Long-Reach HDBaseT	8
B1.14	HDMIRX	4K HDR HDMI Receiver with RS-232 & IR over Long-Reach HDBaseT	7
B1.15	PC	i7 Window 10 Pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>C Video Conference</b>			

C1.1	<b>CAM20X</b>	PTZ camera features a 20x optical zoom lens plus a 16x digital zoom for extra distance when needed delivering 1080p60 quality at 60 fps with full pan and tilt	1
C1.1	<b>CAM12X</b>	PTZ camera with 12x optical zoom, 1080P60 full HD, USB, HDMI, and IP connections	1
C1.3	<b>CMK-CAM</b>	Ceiling Mount Kit for Camera	2
C1.4	<b>CONVHDMIUSB</b>	HDMI to USB 3.0 Capture Box	1
C1.5	<b>USB-EXT</b>	USB 2.0 PoC Extender Kit over Extended–Reach CAT	1
<b>Sub Total</b>			
<b>D Control System</b>			
D1.1	<b>TP-10"</b>	10" Touch panel with Wall Docking Station	1
D1.2		Wall Dock for 10" Touch Panel – Power will be provided by client	1
D1.3	<b>WRL-ROUTER</b>	Wireless AC1200 router with USB 2.0	1
<b>Sub Total</b>			
<b>E Installation plates and cables</b>			
E1.1	<b>FLR-BOX</b>	Floor box with 2XPOWER; 2XLAN	1
E1.2	<b>RING-ADPTR</b>	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type–C (M) to HDMI (F)4K@60Hz (4:2:0)	1
E1.3	<b>CAB-HD-6</b>	Premium High–Speed HDMI Cable 1.80m (6ft)	23
E1.4	<b>CAB-HD-10</b>	Premium High–Speed HDMI Cable 3.00m (10ft)	1
E1.5	<b>USBAB-10</b>	USB 2.0 A (M) to B (M) Cable 3.00m (10ft)	1
E1.6	<b>USBAB-6</b>	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	4
E1.7	<b>HD-DVI-6</b>	HDMI (M) to DVI (M) Cable1.80m (6ft)	2
E1.8	<b>CAB-CAT6</b>	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum
E1.9	<b>CAB-SPKR</b>	1 Pair: 16 AWG Speaker Bulk Cable	
E1.10	<b>CAB-MAD</b>	1 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.11	<b>CAB-SAD</b>	2 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.12	<b>USB-COAX</b>	1 Coax: RG–6 Bulk Cable	

E1.13	PODIUM	Podium with 24'' Monitor mounting provision , Laptop Tray & Storage	1
E1.14	RACK-32	32U Rack with accessories	1
E1.15	NTWRKSW-24 PORT	24 Port Network Switch	1

120 Seater – Smart Class			
Sl. No	Unique ID	Description	Qty
A	Audio System		
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Cardioid condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 Db with 3.5 mm to USB Digital Audio Adapter	1
A1.2	HNDHLD-MIC	Wireless handled microphone with half-rack receiver in a full-metal housing with intuitive OLED display for full control, Up to 42 MHz bandwidth with 1680 selectable depending on country regulations frequencies, fully tunable in a stable UHF range with control software included for advanced frequency coordination in multi-channel setups. High RF output power 30 mW, a with Squelch 5 to 25 dBµV in steps of 2 dB ,Frequency response 40 to 20,000 Hz ,Dynamic range 126 dB(A) ,Pick-up pattern cardioid/super cardioid, switchable with Modulation Wideband FM ,and Power supply 12 V DC .	2
A1.3	HDWRN-MIC	UHF Wireless Cardioid condenser Headworn Microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 dB	1

A1.4	GSN-MIC	Gooseneck Microphone with ON/OFF Switch Frequency response (Microphone) 50 Hz - 20 kHz Transducer principle (Microphone) pre polarized condenser microphone Pick-up pattern cardioid Equivalent noise level 26 dB (A) Equivalent noise level weighted as per CCIR 468-3 37 dB Maximum sound pressure level (passive) 130 dB SPL Power supply P12 - P48 V Current consumption 3 mA with RF shielding against intermodulation from wireless equipment/devices with a cardioid polar pattern.	2
A1.5	ANT-SPL	Active Antenna Splitter	1
A1.6	DRCT-ANT	Passive external directional antenna	1
A1.7	ANT-CAB	RF Antenna Cable	2
A1.8	DSPI/O16	Unified Core with 24 local audio I/O channels, 128x128 total network I/O channels with 8x8 Software-based Dante license included, USB AV bridging, dual LAN ports, POTS and VoIP telephony, 16x16 GPIO, 16 next-generation AEC processors, 1RU.	1
A1.9		Q-SYS Core 110 UCI Deployment Software License, Perpetual	1
A1.10		Q-SYS Core 110 Scripting Engine Software License, Perpetual	1
A1.11	C-SPKR	6.5" Two-way ceiling speaker, 70/100V transformer with 16 $\Omega$ bypass, 135° conical DMT coverage, includes C-ring and rails for blind mount installation. Priced individually but must be purchased in pairs.	8
A1.12	AMP2X200	1/2 RU 2 Channel ENERGY STAR amplifier / Stereo Operation 200 watts into 8 $\Omega$ & 4 $\Omega$ , Bridged operation 400 watts into 8 $\Omega$ & 4 $\Omega$ , and 350 watts into 70v and 100v / 100-240 VAC Operation	1
A1.13	AMP2X60	1/2 RU 2 Channel ENERGY STAR amplifier / Stereo operation 60 watts into 8 $\Omega$ & 4 $\Omega$ , Bridged operation 200 watts into 8 $\Omega$ & 4 $\Omega$ , and 250 watts into 70v and 100v / 100-240 VAC Operation	1
<b>Sub Total</b>			
<b>B</b>	<b>Video System</b>		
B1.1	DSPLY32"	32" Full HD Display with Wall Mount - 350 nits	1
B1.2	INTR MNTR-24"	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1

B1.3	DSPLY65"	65" diagonal 4K Professional Display - 500 nits	1
B1.4	CMK-DSPLY	Ceiling mount bracket for 65" Display	1
B1.5	6200LSPROJ	WUXGA(1920 x 1200) , 6,200 lumens Laser Projector	2
B1.6	PROJ-CMK	Ceiling mount bracket for projector	2
B1.7	SCRN135"	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	2
B1.9	SW8X8	8x8 4K HDR HDCP 2.2 Matrix Switcher with Analog & Digital Audio Routing	1
B1.10	STREAMSRV	H.264 Video Streaming Encoder and MP4 Recorder	1
B1.11	REC	ProRes 4K Video Recorder- Desktop	1
B1.12	CONVHDMISDI	Hdmi to SDI Extension	2
B1.13	DA1X10	1:10 4K60 4:4:4 HDCP 2.2 HDMI 2.0 DA	1
B1.15	HDMITX	4K HDR HDMI Transmitter with RS-232 & IR over Long-Reach HDBaseT	11
B1.16	HDMIRX	4K HDR HDMI Receiver with RS-232 & IR over Long-Reach HDBaseT	9
B1.17	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>C</b>	<b>Video Conference</b>		
C1.1	CAM20X	PTZ camera features a 20x optical zoom lens plus a 16x digital zoom for extra distance when needed delivering 1080p60 quality at 60 fps with full pan and tilt	1
C1.2	CAM12X	PTZ camera with 12x optical zoom, 1080P60 full HD, USB, HDMI, and IP connections	2
C1.3	CMK-CAM	Ceiling Mount Kit for Camera	3
C1.4	CONVHDMIUSB	HDMI to USB 3.0 Capture Box	1
C1.5	USB-EXT	USB 2.0 PoC Extender Kit over Extended-Reach CAT	1
<b>Sub Total</b>			
<b>D</b>	<b>Control System</b>		
D1.1	TP-10"	10" Touch panel with Wall Docking Station	1

D1.2		Wall Dock for 10" Touch Panel – Power will be provided by client	1
D1.3	WRL-ROUTER	Wireless AC1200 router with USB 2.0	1
<b>Sub Total</b>			
<b>E</b>	<b>Installation plates and cables</b>		
E1.1	FLR-BOX	Floor box with 2XPOWER; 2XLAN	1
E1.2	RING-ADPTR	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type-C (M) to HDMI (F)4K@60Hz (4:2:0)	1
E1.3	CAB-HD-6	Premium High-Speed HDMI Cable 1.80m (6ft)	25
E1.4	CAB-HD-10	Premium High-Speed HDMI Cable 3.00m (10ft)	1
E1.5	USBAB-10	USB 2.0 A (M) to B (M) Cable 3.00m (10ft)	2
E1.7	USBAB-6	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	4
E1.8	HD-DVI-6	HDMI (M) to DVI (M) Cable1.80m (6ft)	2
E1.9	CAB-CAT6	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum
E1.10	CAB-SPKR	1 Pair: 16 AWG Speaker Bulk Cable	
E1.11	CAB-MAD	1 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.12	CAB-SAD	2 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.13	USB-COAX	1 Coax: RG-6 Bulk Cable	
E1.14	PODIUM	Podium with 24" Monitor mounting provision , Laptop Tray & Storage	1
E1.15	RACK-42	42U Rack with accessories	1
E1.16	NTWRKSW-24 PORT	24 Port Network Switch	1

240 Seater – Smart Class			
Sl. No	Unique ID	Description	Qty
<b>A</b>	<b>Audio System</b>		
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Cardioid condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 Db with 3.5 mm to USB Digital Audio Adapter	1
A1.2	HNDHLD-MIC	Wireless handled microphone with half-rack receiver in a full-metal housing with intuitive OLED display for full control, Up to 42 MHz bandwidth with 1680 selectable depending on country regulations frequencies, fully tunable in a stable UHF range with control software included for advanced frequency coordination in multi-channel setups. High RF output power 30 mW, a with Squelch 5 to 25 dBµV in steps of 2 dB ,Frequency response 40 to 20,000 Hz ,Dynamic range 126 dB(A) ,Pick-up pattern cardioid/super cardioid, switchable with Modulation Wideband FM ,and Power supply 12 V DC .	2
A1.3	HDWRN-MIC	UHF Wireless Cardioid condenser Headworn Microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 dB	1

A1.4	GSN-MIC	Gooseneck Microphone with ON/OFF Switch Frequency response (Microphone) 50 Hz - 20 kHz Transducer principle (Microphone) pre polarized condenser microphone Pick-up pattern cardioid Equivalent noise level 26 dB (A) Equivalent noise level weighted as per CCIR 468-3 37 dB Maximum sound pressure level (passive) 130 dB SPL Power supply P12 - P48 V Current consumption 3 mA with RF shielding against intermodulation from wireless equipment/devices with a cardioid polar pattern.	2
A1.5	ANT-SPL	Active Antenna Splitter	1
A1.6	DRCT-ANT	Passive external directional antenna	1
A1.7	ANT-CAB	RF Antenna Cable	2
A1.8	DSPI/O16	Unified Core with 24 local audio I/O channels, 128x128 total network I/O channels with 8x8 Software-based Dante license included, USB AV bridging, dual LAN ports, POTS and VoIP telephony, 16x16 GPIO, 16 next-generation AEC processors, 1RU.	1
A1.9		Q-SYS Core 110 UCI Deployment Software License, Perpetual	1
A1.10		Q-SYS Core 110 Scripting Engine Software License, Perpetual	1
A1.11	C-SPKR	6.5" Two-way ceiling speaker, 70/100V transformer with 16 $\Omega$ bypass, 135° conical DMT coverage, includes C-ring and rails for blind mount installation. Priced individually but must be purchased in pairs.	12
A1.12	AMP2X200	1/2 RU 2 Channel ENERGY STAR amplifier / Stereo Operation 200 watts into 8 $\Omega$ & 4 $\Omega$ , Bridged operation 400 watts into 8 $\Omega$ & 4 $\Omega$ , and 350 watts into 70v and 100v / 100-240 VAC Operation	2
<b>Sub Total</b>			
<b>B</b>	<b>Video System</b>		
B1.1	DSPLY32"	32" Full HD Display with Wall Mount	2
B1.2	INTR MNTR-24"	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1
B1.3	DSPLY65"	65" 4K Display	1
B1.4	CMK-DSPLY	Ceiling mount bracket for 65" Display	1
B1.5	7000LSPROJ	WUXGA(1920 x 1200) , 7000 lumens Laser Projector	2

B1.6	PROJ-CMK	Ceiling mount bracket for projector	2
B1.7	SCRN150"	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	2
B1.9	SW8X8	8x8 4K HDR HDCP 2.2 Matrix Switcher with Analog & Digital Audio Routing	1
B1.10	STREAMSRV	H.264 Video Streaming Encoder and MP4 Recorder	1
B1.11	REC	ProRes 4K Video Recorder- Desktop	1
B1.12	CONVHDMISDI	Hdmi to SDI Extension	2
B1.13	DA1X10	1:10 4K60 4:4:4 HDCP 2.2 HDMI 2.0 DA	1
B1.15	HDMITX	4K HDR HDMI Transmitter with RS-232 & IR over Long-Reach HDBaseT	13
B1.16	HDMIRX	4K HDR HDMI Receiver with RS-232 & IR over Long-Reach HDBaseT	11
B1.17	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>C</b>	<b>Video Conference</b>		
C1.1	CAM20X	PTZ camera features a 20x optical zoom lens plus a 16x digital zoom for extra distance when needed delivering 1080p60 quality at 60 fps with full pan and tilt	2
C1.2	CAM12X	PTZ camera with 12x optical zoom, 1080P60 full HD, USB, HDMI, and IP connections	2
C1.3	CMK-CAM	Ceiling Mount Kit for Camera	4
C1.4	CONVHDMIUSB	HDMI to USB 3.0 Capture Box	1
C1.5	USB-EXT	USB 2.0 PoC Extender Kit over Extended-Reach CAT	1
<b>Sub Total</b>			
<b>D</b>	<b>Control System</b>		
D1.1	TP-10"	10" Touch panel with Wall Docking Station	1
D1.2		Wall Dock for 10" Touch panel – Power will be provided by client	1
D1.3	WRL-ROUTER	Wireless AC1200 router with USB 2.0	1
<b>Sub Total</b>			

E	Installation plates and cables		
E1.1	FLR-BOX	Floor box with 2XPOWER; 2XLAN	1
E1.2	RING-ADPTR	Included adapters: Mini DisplayPort (M) to HDMI (F); USB Type-C (M) to HDMI (F)4K@60Hz (4:2:0)	1
E1.3	CAB-HD-6	Premium High-Speed HDMI Cable 1.80m (6ft)	29
E1.4	CAB-HD-10	Premium High-Speed HDMI Cable 3.00m (10ft)	1
E1.5	USBAB-10	USB 2.0 A (M) to B (M) Cable 3.00m (10ft)	2
E1.7	USBAB-6	USB 2.0 A (M) to B (M) Cable 1.80m (6ft)	4
E1.8	HD-DVI-6	HDMI (M) to DVI (M) Cable1.80m (6ft)	2
E1.9	CAB-CAT6	23 AWG U/FTP CAT6A Bulk Cable Optimized for HDBaseT and LAN applications	Lumpsum
E1.10	CAB-SPKR	1 Pair: 16 AWG Speaker Bulk Cable	
E1.11	CAB-MAD	1 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.12	CAB-SAD	2 Shielded Pair: 20 AWG Audio or Control Bulk Cable	
E1.13	USB-COAX	1 Coax: RG-6 Bulk Cable	
E1.14	PODIUM	Podium with 24" Monitor mounting provision, Laptop Tray & Storage	1
E1.15	RACK-42	42U Rack with accessories	1
E1.16	NTWRKSW-24 PORT	24 Port Network Switch	1

Centralised Control Room			
Sl. No	Unique ID	Description	Qty
<b>A</b>	<b>Control System</b>		
A1.1	CNTRLS- CNTRLSYS	Hardware Platform supporting control of up to 50 rooms	1
A1.2	MNGMNT- PLTFRM	OEM Network/Application platform for item in A1.1	1
A1.3	PC	i7 Window 10 pro with 21.5" Monitor + 3yrs Warranty	1
<b>Sub Total</b>			
<b>B</b>	<b>SWITCHING</b>		
B1.7	NTWRKSW-24 PORT	24 Port Network Switch	1
B1.8	RACK-32	32U Rack with accessories	1
<b>Sub Total</b>			
<b>C</b>	<b>Post Production</b>		
C1.1	WORK-PROD	Workstation	2
C1.2	DISP-PROD	Program Monitor	2

		Mini Studio	
Sl. No	Unique ID	Description	Qty
<b>A</b>	<b>Video System</b>		
A1.1	<b>DSPLY55''</b>	55" Diagonal Professional LED Display - 500 nits	2
A1.2	<b>55'' DSPLY-WMK</b>	Wall Mount kit for 55'' Display	2
A1.3	<b>INTR MNTR-24''</b>	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1
A1.4	<b>CAM-USB</b>	BUSINESS WEBCAM with H.264 support	1
A1.5	<b>CAM-HANDY</b>	4K Handycam® with Exmor R® CMOS sensor	1
A1.6	<b>LPL-MIC</b>	Lapel Microphone :UHF Wireless Cardioid Condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dBµV in steps of 2 Db with 3.5 mm to USB Digital Audio Adapter	1

		Engineering Drawing	
Sl. No	Unique ID	Description	Qty
<b>A</b>	<b>Audio System</b>		
A1.1	LPL-MIC	Lapel Microphone :UHF Wireless Cardioid Cardioid condenser lavalier microphone with belt pack transmitter and single receiver with minimum Up to 42 MHz bandwidth with 1680 selectable frequencies depending on country regulations, fully tunable in a stable UHF range,Up to 20 compatible channels,True diversity half-rack receiver in a full-metal housing with intuitive LCD display for full control,Transmission Range: up to 100 meters / 300 feet, High RF output power (up to 30 mW) Squelch 5 to 25 dB $\mu$ V in steps of 2 Db with 3.5 mm to USB Digital Audio Adapter	1
A1.2	HNDHLD-MIC	Wireless handled microphone with half-rack receiver in a full-metal housing with intuitive OLED display for full control, Up to 42 MHz bandwidth with 1680 selectable depending on country regulations frequencies, fully tunable in a stable UHF range with control software included for advanced frequency coordination in multi-channel setups. High RF output power 30 mW, a with Squelch 5 to 25 dB $\mu$ V in steps of 2 dB ,Frequency response 40 to 20,000 Hz ,Dynamic range 126 dB(A) ,Pick-up pattern cardioid/super cardioid, switchable with Modulation Wideband FM ,and Power supply 12 V DC .	2
A1.3	SF-SPKR30	6.5" Two-way surface speaker, 70/100V transformer with 8 $\Omega$ bypass, 130° conical coverage, includes Yoke Mount. Priced individually but must be purchased in pairs.	8
A1.4	AMP2X200	1/2 RU 2 Channel ENERGY STAR amplifier / Stereo operation 200 watts into 8 $\Omega$ & 4 $\Omega$ , per channel Bridged operation 400 watts into 8 $\Omega$ & 4 $\Omega$ , and 350 watts into 70v and 100v / 100-240 VAC Operation	1
A1.5	MXR	Digital Mixer with Minimum 8 Mic/Line Inputs (4 XLR, 4 XLR/Jack Combo)	1
<b>Sub Total</b>			

<b>B</b>	<b>Video System</b>		
B1.1	<b>INTR MNTR-24"</b>	24" Pen and Touch Display with video output port, four short cut keys and 11° - 73° adjustable stand	1
B1.2	<b>SCRN123"</b>	HD MOTORIZED PROJECTION SCREEN HD-MW (16:10)	1
B1.3	<b>6200LSPROJ</b>	WUXGA(1920 x 1200) , 6,200 lumens Laser Projector	1
B1.4	<b>PROJ-CMK</b>	Ceiling mount bracket for projector	1
B1.5	<b>DSPLY75"</b>	75" Diagonal Professional 4K Display - 500 nits	4
B1.6	<b>75" DSPLY-WMK</b>	Swivel Mount for 75inch Display	4
B1.7	<b>SW2X1</b>	2x1 4K HDR HDMI Intelligent Auto Switcher	1
B1.8	<b>DA1X10</b>	1:10 4K60 4:4:4 HDCP 2.2 HDMI 2.0 DA	1
B1.9	<b>CAB-HD-10</b>	Premium High-Speed HDMI Cable - 3.00m (10ft)	1
B1.10	<b>CAB-HD-50</b>	Premium High-Speed HDMI Cable -15.20m (50ft)	1
B1.11	<b>CAB-HD-98</b>	Active High Speed HDMI Cable with Ethernet - 30m (98ft)	5
B1.12	<b>HD-DVI-6</b>	HDMI (M) to DVI (M) Cable1.80m (6ft)	2
B1.13	<b>PODIUM</b>	Podium with 24" Monitor mounting provision , Laptop Tray & Storage	1
B1.14	<b>RACK-12</b>	12U Rack with accessories	1
<b>Sub Total</b>			
<b>C</b>	<b>Installation, Testing and Commissioning</b>		
C1.1		Cables, Adapters & connectors - Lumpsum	1
C1.2		Installation and Commissioning Charges	1

## Functional Document

### 1. Proposed AV solution for classrooms

Classrooms in the Lecture hall complex (240, 120, 60, 40 seater capacity) and the department blocks 1&2 (120, 60 and 40 seater capacity) have been considered for this exercise. The distribution of classrooms into various seating capacities (as per the building floor) is shown in Table 1.

**Table 1: Distribution of rooms as per the sitting capacity**

Room Capacity	No of rooms	Building	Size of the room
240	1	LHC	21 m x 17.57 m
120	5	DB1 (1), LHC (4)	18 m x 13.5 m
90	1	CIF (1)	13 m x 9 m
80	1	LHC (1)	9m x 27m
60	27	DB1(6), DB2(9), LHC (12)	13.5 m x 9 m (LHC) 12 m x 9 m (DB1, DB2)
40	16	DB1(4), LHC(12)	9 m x 9 m

*(LHC: Lecture Hall Complex; DB1: Department Block 1; DB2: Department Block 2; CIF: Central Instrumentation Facility)*

Based on the equipment housed and the requirements catered to, the classrooms are divided into the following four categories:

1. Regular Classroom -- RC (60/40 seater capacity)
2. Hybrid Classroom -- HC (60/40/120 seater capacity)

3. Smart Classroom -- SC (240/120/60 seater capacity)
4. Mini Studio - MS (Two 9 m x 4.5 m rooms)

The distribution of the proposed types of classrooms is given in Table 2.

**Table 2: Proposed Types of Classrooms**

S. No.	Type	No. of Rooms Required				Total Rooms
		240 seater	120 seater	60 Seater	40 seater	
1	Smart Classroom	1 (LHC)	2 (LHC)	4 (LHC)	1-PCR **	<b>8</b>
2	Mini Studio	0	0	0	1 split into 2 (LHC)	<b>1(2)</b>
3	Hybrid Classroom	0	2 (LHC) + 1 (DB1) + 1 (CIF)*	3 (LHC) + 4 (DB1) + 4 (DB2)	6 (LHC)	<b>21</b>
4	Regular Classroom	0	0	5 (LHC) + 2 (DB1) + 5 (DB2)	4 (DB1) + 4 (LHC)	<b>20</b>
<b>Total Rooms***</b>		<b>1</b>	<b>6</b>	<b>27</b>	<b>16</b>	<b>50</b>

\*The classroom in the CIF is a 90 seater and is considered in a similar line as that of the 120 seater classroom.

\*\*A Production and Control Room (PCR) is required (one 40-seater room in LHC) for the remote control of classrooms. In the initial phase, only monitoring and configurations will be performed from the centralized control room. The control room is planned to be near the studio in the LHC.

### 1.1 Regular classroom:

The *regular classroom* can be used for the scenarios described in Table 3. The equipment to be housed in the regular classroom are listed in Table 4.

**Table 3: Regular classrooms usage**

	Instructor in class	Instructor online
All students in class	✓	✗
Students in class & online	✓ Lectures when delivered using slides can be streamed via VC platform. A mic is provided for the instructor to stream the audio.	✗

### 1.2 Hybrid classrooms

The *hybrid classroom* can be used for the scenarios described in Table 5. The equipment requirements for the hybrid classroom are summarized in Table 6.

**Table 4: Hybrid classrooms usage**

	Instructor in class	Instructor online
All students in class	✓ <ul style="list-style-type: none"> <li>• A regular class</li> </ul>	✓ <ul style="list-style-type: none"> <li>• Instructor can view the students using the PTZ camera</li> <li>• Students view the instructor &amp; slides on the projector screen</li> </ul>
Students in class & online	✓ <ul style="list-style-type: none"> <li>• Class proceedings are captured using the</li> </ul>	✓ <ul style="list-style-type: none"> <li>• Same as above.</li> <li>• Students online</li> </ul>

	<p>PTZ camera and streamed through a VC platform</p> <ul style="list-style-type: none"> <li>• The instructor can use the board OR the Interactive display tablet (not both).</li> </ul> <p>Ex: Regular lectures in pandemic time</p>	<p>communicate through VC platform</p> <p>Ex: Regular lectures in pandemic time</p>
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## 1.2. Smart Classroom

The smart classroom is designed for regular lectures, lectures in hybrid mode and for professional recordings. Hence, in addition to the equipment in the hybrid classroom, it is equipped with additional audio and recording equipment. This facility is also meant for recording and streaming of live lectures for dissemination to various other public sources.

## 1.3 Production and Control Room

A 40 seater classroom has been proposed for the production and control room. Through control room, one should be able to observe the health status of the devices and minimal configurations.

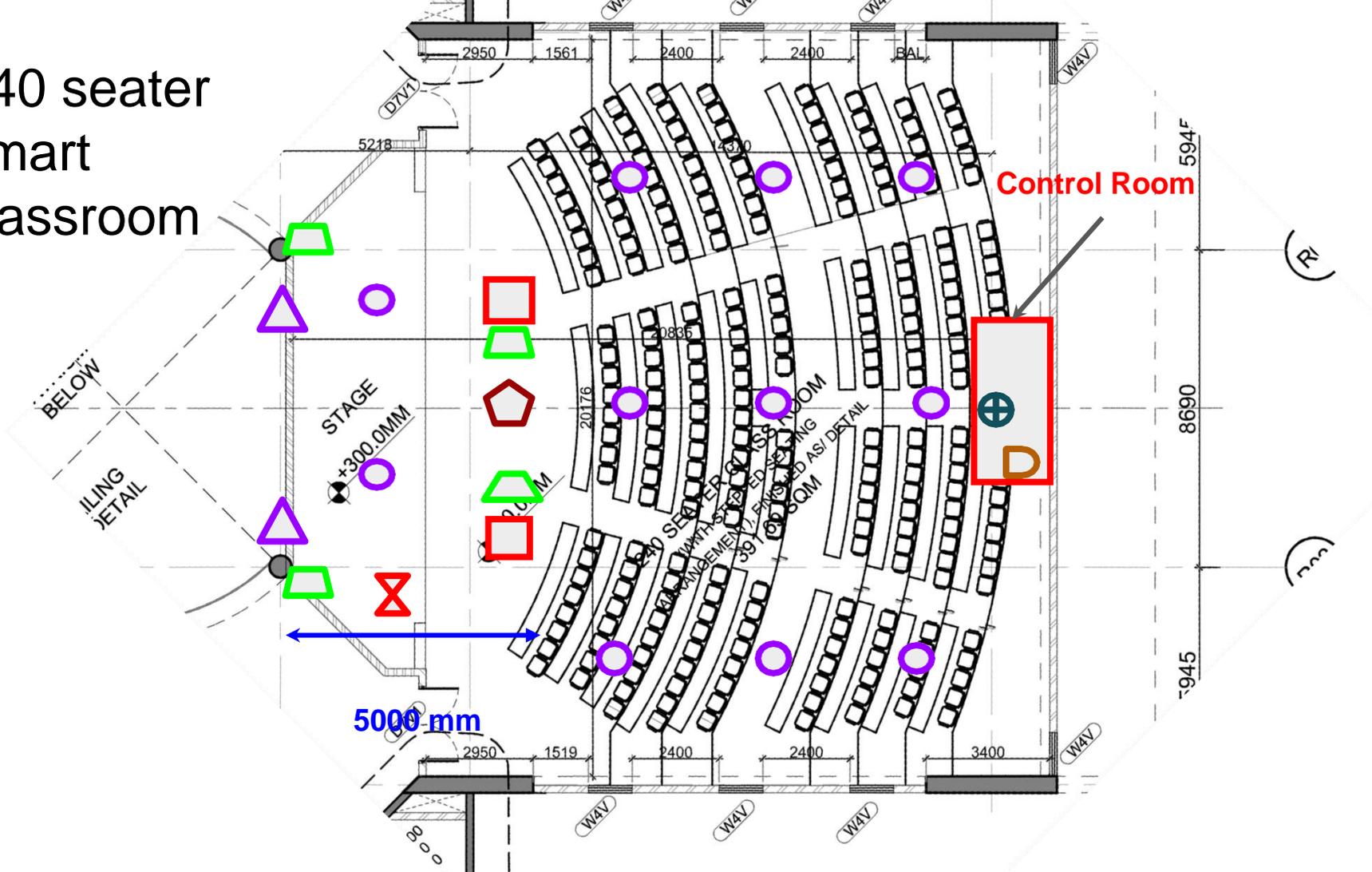
## 1.4. Mini Studio

The mini-studio is primarily meant for off-line recording of the lectures either using an interactive display type device or a conventional board. This can also be used for developing professional online lectures.

# Indicative diagrams for classrooms

(It indicates a tentative positions of the equipment only and  
the actual positions may vary)

240 seater  
smart  
classroom



# 240 seater smart classroom



Camera



Screen



Projector



65 inch display



Podium



Ceiling speaker

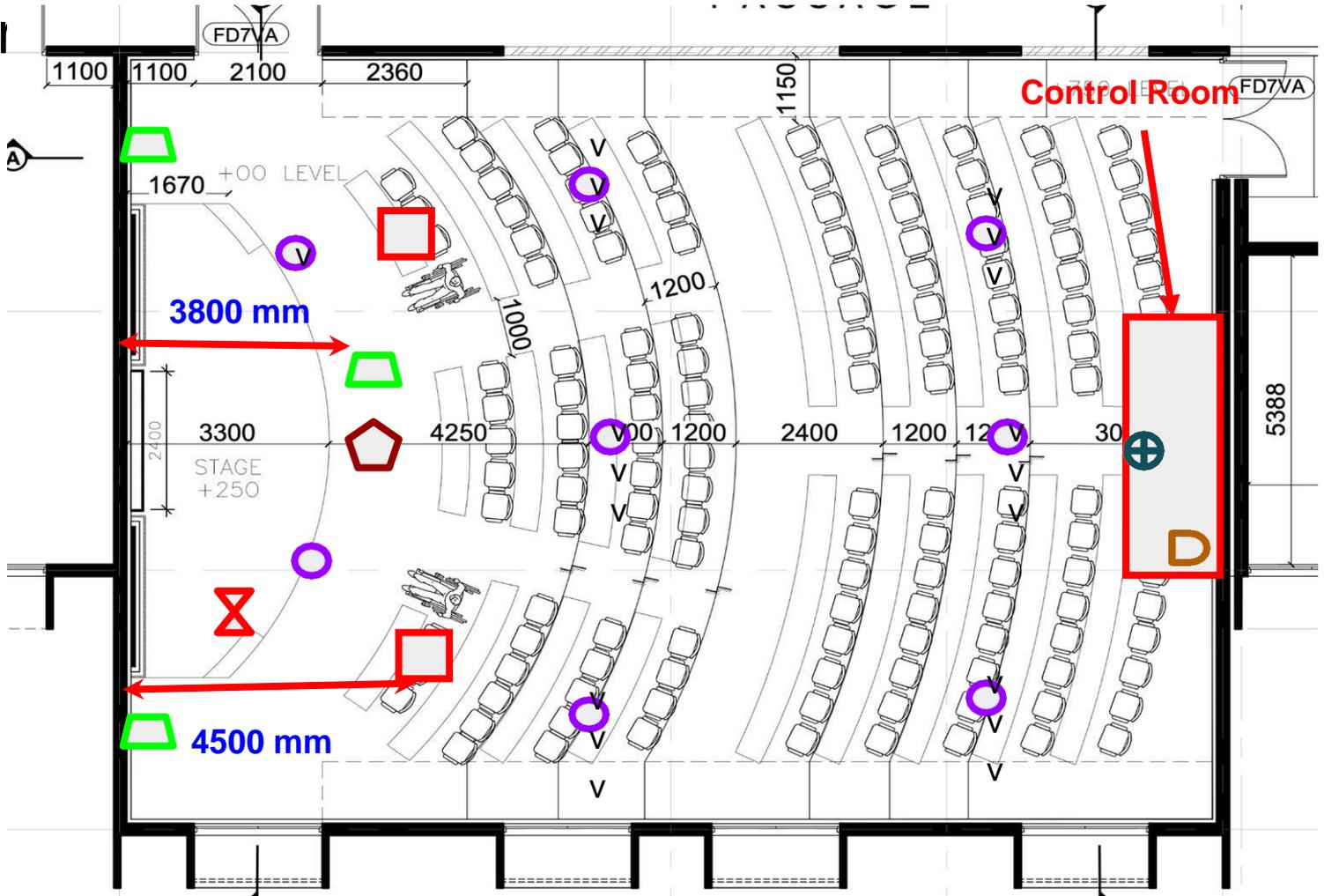


32 inch display



AV Rack

# 120 seater smart classroom



# 120 seater smart classroom



Camera



Screen



Projector



65 inch display



Podium



Ceiling speaker



32 inch display



AV Rack



# 60 seater smart classroom



Camera



speaker



Screen



Projector



AV Rack

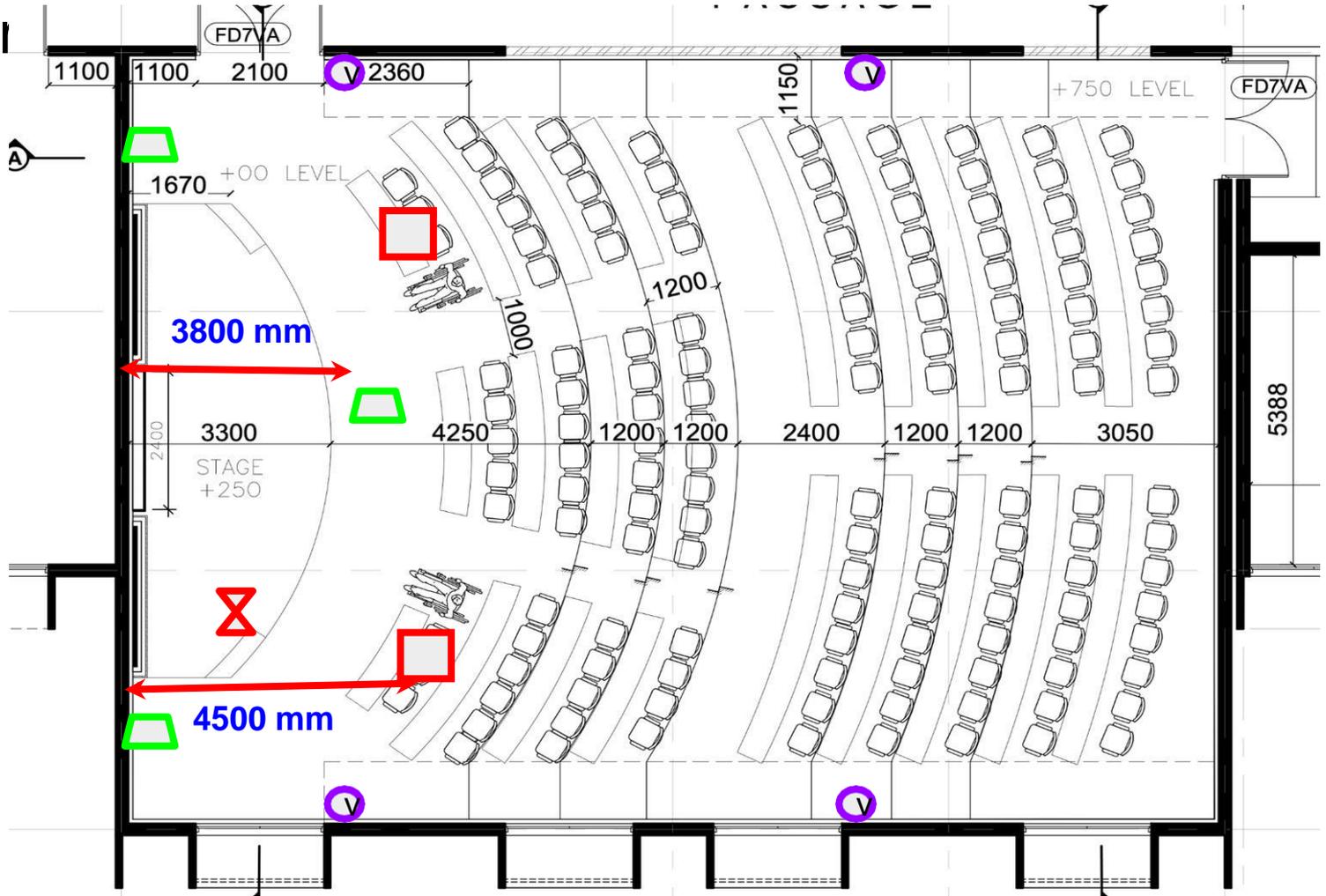


65 inch display



Podium

# 120 seater hybrid classroom - LHC



# 120 seater hybrid classroom



Camera



Screen



Projector



Podium



speaker



# 60 seater General classroom



Screen



Projector



Podium



speaker

