Tender Document

Supply, Installation and Commissioning of Recording Studio Equipment at IIT Kharagpur

Tender No. IIT/SRIC/CET/NPL/SEQ/2015-16 dated 25/05/2015

Centre for Educational Technology
Indian Institute of Technology
Kharagpur - 721302
INVITATION OF TENDER FOR SUPPLY OF STUDIO EQUIPMENT

Sealed tender offers are invited in two separate covers (Technical and Commercial Offers) from eligible reputed OEM and/or their authorized distributors/ System Integrators for supply, installation and commissioning of three recording studio set up at Kolkata (2 Nos.) and Kharagpur (1 No.).

Tender Schedule

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<td>Tender Notice No.</td>
<td>IIT/SRIC/CET/NPL/SEQ/2015-16 dated 25/05/2015</td>
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<td>Earnest Money Deposit</td>
<td>Rs. 1,00,000</td>
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<td>Last date and time of receipt of tender offers</td>
<td>15/06/2015 up to 12:30 PM (IST)</td>
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<td>Place of tender submission and opening of tender offers</td>
<td>Office of the Chairman &amp; Head, Centre for Educational Technology, Indian Institute of Technology, Kharagpur – 721302, W.B.</td>
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<td>Date and time of opening of technical bid</td>
<td>15/06/2015 at 3:00 PM (IST)</td>
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<td>6</td>
<td>Date and time of opening of price bid</td>
<td>Will be intimated to the technically qualified bidder later.</td>
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The techno-commercial bids of the tender complete in all respects as per the Scope of work, Technical Specifications and operational requirement given in Annexure-I, complying the General Terms and Conditions given in Annexure-II must be submitted strictly in accordance with Annexure-IV.

The tender offer is to be sent in a sealed packet containing two sealed envelopes (one each for Technical Bid and Price Bid) along with the Earnest Money Deposit (EMD), duly superscribed with Tender Notice No. IIT/SRIC/CET/NPL/SEQ/2015-16 dated 25/05/2015 addressed to Prof. Bani Bhattacharya, Principal Investigator (NPL), Centre for Educational Technology, Indian Institute of Technology, Kharagpur – 721302, W.B. within the due date and time of submission.
Scope of Work

Design, Supply, Installation and Commissioning of a total solution for setting up of three recording studios. The studios will be used to record live classroom lectures using multiple audio and video sources as well as interfaced with the existing video conferencing infrastructure of the classroom.

Description of studio

The recording studios will be set up in acoustically treated rooms and will provide all classroom teaching aids to the teacher so that he can take normal classes in presence of local students as well as the same can be also be recorded with student’s interaction. As the classrooms are equipped with high definition H.323 based video conferencing system, the final recorded output will also be interfaced with the video conferencing CODEC so that remote teaching is also possible.

Each classroom will have two cameras (CAM1 and CAM2). The wall mounted HD PTZ camera (CAM1) placed in front of the teacher will either capture the teacher’s view or the view of Teacher with the white/black board.

Another similar type of HD PTZ Camera (CAM2) will be hung from the ceiling at a height of about 3 meters on the top of the teacher’s table to act as document camera. The document camera is expected to capture Arial 20 font sized handwriting on an A4 size paper clearly.

The teacher will be provided with a desktop PC (COMP1) for power point presentation. The monitor of the PC will be touch sensitive interactive pen display which can be used for annotation over power point slides as well as be used as digital writing board.

To insert title to the recorded lecture, one desktop PC (COMP2) will be available to the operator in the control room. The PC with necessary internal capture and playback card and Adobe Premier Software will be used by the operator to create title video with flexibility of choosing font size, font colour, text position, logo size, logo position and title background design (colour and graphics) as per the recording requirement easily and add audio clip in the title video.

All the video sources CAM1, CAM2, COMP1 and COMP2 will be directly routed to the video switcher placed in the Control Room using standard professional video interface as mentioned in technical specifications. The operator should be able to view all video sources independently, Preview and Program out (PGM).

The PTZ functionality and other features of CAM1 and CAM2 are to be controllable from remotely from the control room area.
The teacher will be provided with either a high quality miniature clip type wired or wireless lavalier microphone depending on whether he is using document camera or using whiter/black board. The classroom will have at least four or more sensitive ceiling mounted boundary layer microphones to record students’ interaction. The operator should be able to adjust the gain and other characteristics of individual microphones simultaneously with video switching activity without stalling each other’s functionality. The operator will monitor audio characteristics using suitable professional quality headphone.

The final AV output will be recorded in MPEG-4 Part 10 or H.264 AAC compatible user customizable (compression type, aspect ratio, bit rate etc.) format in a tapeless solid state media. Suitable windows based licensed editing software will be used for editing and converting the file into the desired .mp4 format. The recorder should have built-in display system for monitoring the program being recorded. In case hard disk drive is used to record the lecture, the recorder must support multiple file system (Windows, Mac) external HDD for data transfer.

A part of the final video will be projected locally through two 65 inch TV/display monitors mounted on to the acoustic treated wall behind the teacher’s desk and the audio output will be interfaced with the existing/new audio system whichever is applicable.

As each of the proposed studios are already equipped with HD Video Conferencing System, a part of the final audio and video will also be interfaced with the VC equipment using suitable interface.

The wooden partitioned control room of each studio will be located within the classroom itself within a distance of about 10 meters from the teacher desk. The control room space will house title generation PC, video switcher, audio mixer, small display monitor for viewing individual and selected source, recorder etc. All required signal and power cables of the acoustically treated studios are to be routed through the top of the ceiling with appropriate support structure created separately for this purpose.
Schematic of the studio layout

Inside Studio
- Top Camera
- Touch Screen Tablet PC
- Front Camera
- Monitor
- White Board
- Monitor

Control Room
- Monitor
- Monitor
- PC
- Audio Mixer
- Camera Controller
- Switcher
- Recorder
Technical Specifications of major components

The minimum specifications for major audio video components are listed below which must be met while selecting the components of the integrated solution. The list is not exhaustive and the bidders should include all other equipment/ accessories/ cables/ software as required meeting the operational requirement. The bidders should also consider room size for determining the bill of materials.

The specifications for modular solution comprising individual components are listed below. However, any solution that integrates some components of the whole system into one box is also acceptable provided no compromise has been made in the operational and system requirement as mentioned in the studio description and individual specifications. However audio mixer must be separate and cannot be considered for clubbing with any other system components.

A. Motorized HD PTZ Camera
   1. Image sensor : 1/3 inch 3 MOS/CMOS Full HD ≥ 2 Megapixel or more
   2. Output format : 1080/50i, 720/50p
   3. Optical zoom : 14X or better
   6. PAN : ± 170 degree or more
   7. Tilt : 120 degree or more
   8. Gain : Auto and Manual (0 dB to 18 dB or higher in steps)
   9. SNR : 50 dB or better
   10. Presets : 16 or more
   11. Video interface : HD-SDI
   12. Mounting : Wall and Ceiling mount

   Camera Control : Through remote controller. It should be possible to control Pan, Tilt, Zoom, Focus, Iris, Gain and White Balance of at least four cameras located within 50 meters cable distance.

B. Desktop PC
   The PC which will be used for title generation in the studio setup will have one internal playback & capture card. So that PC must have suitable slot to house the card.
   1. Processor : Intel Core i5
   2. RAM : 4 GB 1333 DDR3
   3. Storage : 1 TB 7200 RPM SATA HDD
   4. Slots : PCI express 8 lane Gen2 compatible with 8 and 16 lane PCIe capture and playback card.
   5. Optical disk :16X DVD RW
   6. External slots : USB 2.0x2, USB 3.0 x2, Audio : Line In, Line Out, HDMI/Display Port
   7. Network : Gigabit Ethernet
   8. Display monitor : 23 inch widescreen (16:9)
   9. Accessories : USB Mouse, USB Keyboard

C. Touch Interactive Pen Display
   1. Display : 21 inch or more LCD/LED type
   2. Resolution : Full HD 1920x1080
3. Pen: Pressure sensitive, cordless
4. Pen pressure: 1024 levels
5. Aspect ratio: 16:9
6. Tilt range: ≥ 50 degrees
7. Viewing angle: ≥ 178 degrees (Horizontal and vertical)
8. Contrast ratio: ≥ 900:1
9. Brightness: ≥ 210 cd/m²
10. Display connection: DVI-I
11. PC connectivity: Through USB
12. Reading technology: Electromagnetic Resonance (EMR)

D. HD Video Switcher
1. Video format supported: 1080/50i, 720/50p, RGB 1024x768 to 1920x1080
2. Video inputs: 4xHD-SDI, 2xHDMI
3. Video outputs: 2xHD-SDI, 1xHDMI
4. Video processing: RGB 4:2:2 sampling 10 bit or better
5. Video effects: Mix to wipe patterns, Fade to black
6. Multi-viewer output function: Yes
7. System: PAL B format

Display: Separate 21 inch professional LED/LCD monitor for multiview (all sources, preview, PGM). The display size can be 15.6 inch or more in case the monitor is built-in within the video switcher. However in such case, multi viewer display output should also be available for connecting external display system. Also there should be one 17 inch professional monitor to view the PGM output separately.

E. Professional Audio Mixer
1. Input channels: 8 Nos. with low noise mic preamps, level, gain, EQ, Aux, Pan, Mute and Mono controls.
2. Frequency response: 20 Hz to 20 KHz
3. Gain range: 60 dB or higher
4. Noise characteristics: THD less than 0.001%
5. Mic supply: Phantom power for condenser microphone
6. Interface: XLR
7. Outputs: 2 Nos. or more

F. Wired Lavalier Microphone
1. Type: Sub-miniature clip-on back electrets condenser microphone
2. Pick up pattern: Omni directional
3. Frequency response: 20 Hz to 20 KHz
4. Sensitivity (at 1 KHz): 10 mV/Pa ± 2.5 dB or better
5. Max SPL (at 1 KHz): 130 dB (THD ≤ 1%) or better
6. Cable length: 3 meter or more

G. Wireless Lavalier Microphone
1. Type: Sub-miniature clip-on microphone with small body pack transmitter and rack mountable receiver
2. Frequency response: 25 Hz to 18 KHz or better
3. SNR (at 1 mV and peak deviation) ≥ 100 dBA
4. THD (at nominal deviation and 1 KHz) ≤ 0.9%
5. Receiver sensitivity : \( \leq 2.5 \mu V \)

**H. Boundary Layer Microphone**
1. Mounting : Ceiling mounted
2. Frequency response : 20 Hz to 20 KHz
3. SNR (at 1 KHz) : \( \geq 60 \text{ dB} \)
4. Sensitivity : 20 mV/Pa or better

**I. Audio Amplifier**
1. No. of channels : 2
2. Output signal : Stereo
3. Output power : 4 Ohms stereo (per channel) : \( \geq 200 \text{ Watts} \)
4. Sensitivity (for full rated power at 4 ohms) : \( \pm 0.75 \text{ dB} \) or better
5. Total harmonic distortion : \(< 5\% \)
6. Signal-to-noise ratio : \( > 100 \text{ dB} \)
7. Input impedance : 20 K\( \Omega \) balanced, 10 K\( \Omega \) unbalanced
8. Load impedance : 2 to 8 Ohms per channel in stereo

**J. Loudspeaker**
1. Continuous power handling capacity : \( \geq 150 \text{ Watts} \)
2. Frequency range (-10 dB) : 80 Hz to 20 KHz
3. Frequency response (\( \pm 3 \text{ dB} \)) : 100 Hz to 18 KHz
4. Speaker size : 8 inch
5. Mounting : Wall mount for easy adjustment of speaker direction

**K. HD Video Recorder**
1. Recording media : Flash memory card or HDD
2. Recording : At variable bit rate.
3. Editing system support : Compatible with Apple Final Cut Pro, Adobe Premier Pro type of NLEs
4. Video input : 1xHD-SDI or more
5. Video output : 1xHD-SDI or more
6. Monitor : 2.5 inch or larger LED/LCD type
7. Memory support : 64 GB or higher capacity for flash memory and 500 GB or more for Hard Disk Drive
8. Data transfer : For HDD type recording media, the recorder should support data transfer to an external multiple file system (Windows, Mac) supported HDD using USB interface.

**L. LED Monitor/Television**
(a) Screen size and type : 65 inch (Diagonal) LED monitor
(b) Resolution : 1920x1080
(c) Brightness : \( \geq 400 \text{ cd/m}^2 \)
(d) Contrast ratio : \( \geq 4000:1 \)
(e) Interface : HDMI, DVI-D
(f) Aspect ratio : 16:9

**M. Playback and Capture Card**
(a) Type : Internal card (to be installed in suitable slot of title generation PC)
(b) Input : HD-SDI/HDMI
(c) Output : HD-SDI/HDMI
(d) Video format supported: 1080/50p and all lower resolutions.
(e) Supported CODECs: AVCHD, DV, DVCPro, XDCAM etc.

N. Signal Splitters, Switchers and signal combiners
All the signal splitters, switchers, media converters, signal combiners/embedders are to be sourced from reputed brands like Extron/Kramer/Black Magic Design etc and their make and model No. is to be clearly mentioned in the un-priced bill of material of the technical bid.

O. Software
All the software like Adobe Premier Pro/Adobe Final Cut Pro/Windows editing software must carry perpetual license.

The bidders have to clearly mention how the following special functional requirements are met in the proposed solution. The bidder must also be willing to give demonstration to the Institute during technical bid evaluation, if required.

| Title generation          | The system supports generation of lecture title easily with:
|                          | • Normal (different coloured) or graphics background,
|                          | • Flexibility to choose font size, font colour, text position,
|                          | • Insertion of logo with changing size, style and position,
| Recording                | Recorder permits recording in tapeless solid state media in variable bit rate.

**Quantity of major equipment required (including spares)**

| 1. | HD PTZ Camera | 7 |
| 2. | Camera Remote Controller | 3 |
| 3. | Video Switcher | 3 |
| 4. | 21 inch Professional LED/LCD Monitor (only if the video switcher does not have built-in display) | 3 |
| 5. | 17 inch Professional LED/LCD Monitor | 3 |
| 6. | Wired Lavalier Microphone | 4 |
| 7. | Wireless Lavalier Microphone | 4 |
| 8. | Boundary Layer Microphone | 12 |
| 9. | Audio Mixer | 4 |
| 10. | AV Recorder | 4 |
| 11. | Desktop PC | 6 |
| 12. | Video Capture & Playback card | 4 |
| 13. | Adobe Premier software | 3 |
| 14. | Windows Video Editing Software | 3 |
| 15. | Touch Interactive Pen Display | 3 |
| 16. | Audio Amplifier | 1 |
| 18. | Loudspeaker | 4 |
| 19. | 65 inch LED TV/Monitor | 6 |
| 20. | Professional headphone | 4 |

The quantity mentioned above are only provisional and may vary.
General Terms and Conditions

1. Submission of bids
The sealed bids can be deposited at the Office of Head, Centre for Educational Technology, Indian Institute of Technology, Kharagpur – 721306 up to 12:30 PM on 15.06.2015. The bids (technical and price bids) once submitted shall be the property of the Institute and shall not be returned to the vendor in future. Any bid reached after the last date and time of submission shall NOT be received and considered.

A bid submitted with false information will not only be rejected but the vendor may also be debarred from participation in future tender process.

2. Opening of bids
The technical bid will be opened on at 3 PM on 15.06.2015.
The date and time of opening of price bid in respect of the technically qualified bidders will be intimated later by phone/e-mail. Those bidders who do not receive any communication for participation in the Price Bid opening meeting may presume that their bid has not been accepted by the Institute. The Institute does not bind itself to offer any explanation to those bidders whose technical bids have not been found acceptable.

Tenderer or his/her authorized representative may choose to be present at the time of opening of technical bids/Price bids with proper authorization letter for attending the same.

3. The person/Officer signing the tender/bid documents should be delegated with an appropriate Power of Attorney by the Chief Executive Officer/Managing Director of the company to sign such documents.

4. Eligibility of the bidder
The intending bidder must comply the following terms and conditions:
(a) The firm must be a registered Indian company
(b) Firm must be a profit making company
(c) The bidder should have minimum 3 years experience in installation and maintenance of audio-video or IT systems.
(d) The bidder should not have been black listed/debarred by any Govt. organization/PSU/Autonomous bodies.

5. Bid evaluation
Following factors will be considered for evaluation of the technical bid:
(a) Past performance and capability to execute the contract
(b) System solution proposed
(c) Other technical bid documents submitted

6. Earnest money deposit
An amount of Rs. 1,00,000/- (Rupees one lakh) only in the form of Demand Draft drawn in favour of “Indian Institute of Technology Kharagpur” drawn on any scheduled/ Nationalized Bank and payable at Kharagpur. The EMD should be enclosed separately in an envelope and stapled with the Technical Bid document super scribing EMD. The
EMD shall be refunded to the unsuccessful bidders on finalization of the tender process. The EMD of the successful bidder will be returned on submission of Performance Bank Guarantee. Any offer without EMD will be summarily rejected.

7. **Compliance**
   A point wise compliance list against the technical specifications clearly mentioning the proposed make and model no. of each equipment and relevant technical literatures are to be provided along with the technical bid. Any deviation must also be clearly specified. In absence of this document, the offer of the concerned bidder may not be considered for technical bidding.

8. **System integration diagram**
   The system diagram incorporating all the components of the system must be provided along with the technical bid documents. Further, how the proposed solution intends to meet special functional requirement (Title generation and recording) is to be clearly mentioned.

9. **Bill of materials**
   All essential items like cables, connectors, mounting kits, media converters, interface devices, signal embedders which are required for completion of the project to meet the specifications and scope of work shall be considered to have been included in the proposed solution and will have to be provided by the successful bidder without any additional cost. Bidders must not quote any end of life or obsolete products.

   The final bill of materials with prices masked is to be submitted in the technical bid clearly mentioning make and model no. of all equipment and accessories used in the solution.

10. **Validity of Price**
    The quoted price should be valid for a period of 120 days from the date of opening of technical bid.

11. **Submission of rates**
    The quoted rates must be in Indian Rupees clearly showing the breakup of all local taxes, VAT duties, levies, freight, insurance, installation charges including any other incidental charges like labour, masonary etc.

12. **Conditional offer**
    Conditional bids will not be accepted on any ground and shall be rejected straightway. If any clarification is required, the same should be obtained before submission of the bids.

13. **Payment terms and performance guarantee**
    90% of the payment will normally be made on successful installation and commissioning and due certification in this regard by the concerned Principal Investigator of the Project through crossed account payee cheque/ electronic transfer. A sum of 10% of the invoice value shall be retained as Security Deposit towards Performance Guarantee. The security deposit so retained may be refunded on submission of Performance Bank Guarantee for the equivalent amount of the Security Deposit valid for three years warranty period plus sixty days drawn on any commercial bank. The PBG should be free from any preconditon and permit encashment without any demur merely on a demand note from the purchaser.
No advance payment will be made against supply of the stores.

14. **Liquidated damage**
   In the event of failure to deliver the stores beyond the specified date, liquidated damages @ 1% per month or part thereof in respect of the value of stores will be deducted, subjected to a maximum of 5%. Alternately, the order will be cancelled and the undelivered stores purchased from elsewhere at the risk and expense of the vendor.

15. **Software license**
   Software’s licensing price or policy (if any) shall be clearly mentioned. All licenses should be perpetual.

16. **The tenderer shall enclose the following documents/information along with their**

   **Technical Bid**
   (a) Current income tax and sales tax clearance certificate and PAN No.
   (b) Bankers solvency certificate
   (c) Summary of audited statement of accounts for the last three financial years

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   **Price bid**
   (a) Complete postal address, email address and tele links of contact persons
   (b) Full name and address of the beneficiary on whom the order is to be placed.
   (c) Name and full address of the banker of the beneficiary along with the bank details
       (Account No., Type, IFSC Code, Swift Code etc.)

17. **Warranty**
   All the equipment and accessories supplied as part of the order shall carry an onsite comprehensive warranty of three years from the date of installation and commissioning. The bidder must attach certificates about their after sales and service facilities, escalation support for on-call service and a clear undertaking that in case of any fault with any equipment or its accessories, it will be replaced/repaired to make the system fully functional within 7 (Seven) days from the date of receipt of such intimation by phone/email failing which the Institute will be free to charge @ 2000/- per day recoverable from the performance bank guarantee.

18. **Delivery Period**
   The stores ordered must be delivered, installed and commissioned within a period of 30 days from the date of placing the purchase order. The installation will be considered complete and warranty period will commence only when all the components of hardware, software, etc. are installed, commissioned and satisfactory working of the entire setup as per the scope of work mentioned and all documents/media are delivered.

19. **Indemnity**
   The supplier shall indemnify the purchase against all third party claims of infringement of patent, trademark or industrial design right arising from the use of goods or any part thereof in India.
IMPORTANT

1. The authority of IIT Kharagpur may accept or reject any or all the bids in part or full without assigning any reason and does not bind itself to accept the lowest bid. The Institute at its discretion may change the quantity/ upgrade the criteria/ drop any item or part thereof at any time before placing the Purchase Order.

2. In case of any dispute, the decision of Institute authority shall be final and binding on the bidders.

3. For any query pertaining to this bid document, correspondence may be addressed to Mr. Shib Sankar Das, Network Engineer (VC) at ssdas@cet.iitkgp.ernet.in.
DECLARATION

1. I, .................................................... son/daughter of Shri ..............................

 ...................................................... Proprietor/Partner/CEO/MD/Director/Authorized
Signatory of M/S ............................................................ am
competent to sign this declaration and execute this tender document.

2. I have carefully read and understood all the terms and conditions of the tender and
hereby convey my acceptance of the same.

3. The information/documents furnished along with the above application are true and
authentic to the best of my knowledge and belief.

4. I/ we/ am/ are well aware of the fact that furnishing of any false information/ fabricated
document would lead to rejection of my tender at any stage besides liabilities towards
prosecution under appropriate law.

5. Each page of the tender document and papers submitted by my company is
authenticated, sealed and signed, and I take full responsibility for the entire documents
submitted.

___________________________
Signature of the authorized person

Date : ................................. Full Name : ..................................................

Place : ................................. Company seal : ........................................
Documents to be submitted in the Technical bid

All pages of the technical bid must be serially numbered and the index page should clearly mention page number(s) against each item

1. Earnest Money Deposit: An amount of Rs. 1 Lakh in the form of a Demand Draft drawn in favour of “Indian Institute of Technology, Kharagpur” on an scheduled/ Nationalized Bank payable at Kharagpur.
2. Power of attorney of the authorized signatory for signing the tender document.
3. Declaration form as per Appendix III.
4. Registration certificate of the company.
5. Current income tax and sales tax clearance certificate.
6. Attested photocopies of PAN Card, Service Tax, CST/VAT Registration papers
7. Banker’s solvency certificate
8. Summary of audited statement of accounts of the company for the past 3 financial years in official letterhead.
9. Attested photocopies at least 2 purchase orders to prove eligibility criterion.
10. Point wise compliance sheet of the technical specifications and general terms and conditions in tabular form.
11. System integration diagram to meet the objectives of the work including how special operational requirements are proposed to be met.
12. Technical literatures of all equipment and accessories used in the proposed solution.
13. Unpriced bill of material clearly mentioning the quantity, make and model number of all equipment, accessories (interface devices, cables, connectors), with different software and their version.
14. One copy of tender document with each page signed and stamped
15. Self declaration that the bidder has not been blacklisted by any Govt. organization/ PSU/ Autonomous Institution.
16. The names of the organizations and department to which similar jobs have been executed with full address and telephone number of customers with satisfactory completion certificate/ satisfactory working certificate.
17. After sales service, technical support facility and escalation matrix with mention of the maximum down time required before the system is repaired/ replaced.
18. Undertaking that the quoted product will not be declared obsolete within next three years.

Documents to be submitted in the Price bid

1. Price bid
2. Complete postal address, email address and telephone no. of contact persons
3. Full name and address of the beneficiary on whom the order is to be placed.
4. Name and full address of the banker of the beneficiary along with the bank details (Account No., Type, IFSC Code, Swift Code etc.)