



**NATIONAL CENTER FOR COMBUSTION RESEARCH
AND DEVELOPMENT (NCCRD)
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI – 600036, INDIA**

Ref. No. ICS/11-12/013/DSTX/TSUN

Date: 7 Mar. 2014

Due date: 28 Mar. 2014

Item name: INTEGRATED VIRTUAL CLASSROOM SOLUTION

1. Quotations are invited in duplicate for the items shown overleaf (in Annexure I). The quotations duly sealed and superscribed on the envelope with reference no. and due date, should be addressed to the undersigned so as to reach on or before the due date mentioned above.
2. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
3. The total cost of the equipment in terms of CIP Chennai should be clearly mentioned.
4. Terms of warranty and guarantee should be explicitly mentioned.
5. Packing and delivery charges, customs and clearance duty should be clearly stated.
6. Goods shall not be supplied without an official supply order.
7. Local firms : Quotations should be for free delivery to this institute. If quotations for ex-godown delivery charges should be indicated separately.
8. Firms outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If ex-godown, packing, forwarding and freight charges must be indicated.
9. The rate of sales / general taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for sales / general taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax (CST) applicable to non-government educational institutions run with no profit motive for which a concession sales tax certificate will be issued at the time of final settlement of the bill.
10. Payment : Specify the mode of payment and if advanced payment has to be made. Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.
11. IIT Madras is exempt from payment of excise duty and is eligible for concessional rate of customs duty. Necessary certificate will be issued on demand.
12. IIT Madras has the right to accept the whole or any part of the tender or portion of the quantity offered or reject it in full without assigning any reason.
13. In case of any queries/clarifications, please contact Mr. Raj Varadarajan, NCCRD Office, IIT Madras, Chennai, Ph. +91-44-22575025.
14. The sealed quotation may be sent to

Prof. S. R. Chakravarthy

NCCRD Office

No. 201, Rarefied Gas Dynamics Lab (Behind Aerospace Engineering Dept.)

Chennai – 600036

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Annexure I

Ref. No. ICS/11-12/013/DSTX/TSUN

**Date: 7 Mar. 2014
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Specifications for Integrated Virtual Classroom Solution

Integrated Virtual classroom solution in Seminar Hall – Aerospace Engineering, IIT Madras

Item # 1

Supply and installation of High Definition Video Conferencing system with additional camera-

HD camera, codec, with Microphone Array, cables, and remote control

Minimum Video standards, protocols and features

H.323/SIP up to 6 Mbps point-to-point, H.261, H.263, H.264 AVC, H.264 High Profile, H.264 SVC, RTV

H.263 & H.264 Video error concealment, Content sharing

Video input

2 x HD camera PTZ, 3 x HDMI 1.4, 1 x YPbPr, 1 x VGA

Video output

3 x HDMI 1.3, 3 x VGA

Resolution - 1080p, 60 fps , 1080p, 30 fps , 720p, 60 fps , 720p, 30 fps , 4SIF/4CIF, 60 fps ,

Camera

SMPTE 296M 1280 x 720p60 SMPTE , 274M 1920 x 1080p, 60/50, 12x optical zoom, --72° FOV min

Audio input

Microphone array, 2 x HDCl (camera), 3 x HDMI, 2 x RCA line-in

Audio output

1 x HDMI (to in-room audio system), 1 x HDMI (to conference recording device), 1 x RCA pair stereo line-out



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Other interfaces – USB 3.0 and 2.0, RS 232

Audio features

Automatic gain control, Automatic noise suppression, Keyboard noise reduction

Live music mode, Instant adaptation echo cancellation and Audio error concealment

The Soft clients should be supported to connectivity from Handheld devices like Tablet/smartphone/laptop and should be able to dial in and dial out to the Video system over the IP.

Power supply: AC auto sensing power supply

Item # 2

Projectors - (Quantity : 02 Nos)

LCD Technology , Min 4500 ANSI lumens, Min WXGA (1280 x 800) Aspect ratio : 16: 9 or 10

Contrast ratio 3700 : 1, Input : mini D-Sub 15 pin x 2, RCA x 1, S-Video x1, Digital Input : HDMI x 1 (HDCP Compliant) O/P: Mini D-Sub 15 Pin x 1, Audio input: Stereo Mini Jack (3.5mm) x 1, RCA jack (L/R x1). Audio output: Stereo mini jack (3.5mm) minimum 2, Communication terminal : serial Mini D-sub 9-pin x 1 (RS-232C) Lan (RJ 45) Lamp hours : Minimum 4000 hours , Zoom/Focus: Approx 1.5X Manual Zoom/ Manual Focus

Item # 3

Ceiling mount kit for the Projector – 2 Nos: Low profile multiproduct Aluminium Anodized ceiling mount kit requires 2" in height b/w Projector and Ceiling, with pole length from 25" - 48" which fits Ultra Short Throw projectors weighing upto 20 Kgs. The mount should accommodate 1/4 rack width products including Amplifiers, Mini Switcher and other stick-on products. Swivel 360 degree & +/- 30 - 45 degree

Item # 4

Motorized Projection Matte White Screen – 2 Nos: should have a wide viewing angle of 160 degree with four side black masking borders. Diagonal size of 130", with 16:10 Aspect Ratio, with wired remote and 3-Pin power connection for plug & play.

Item # 5

Ceiling microphones



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To pick up queries from the students. Minimum 10 and Maximum 30– nos to be used for lecture hall that seats 120 students (maximum)

Item # 6

Table Top Boundary Microphone – Includes attached 4 meter (12 ft) cable terminated with a 4-pin mini connector and separate preamplifier. A rubber strain relief provided for applications that require removing the 4-pin mini connector and connecting the mic cable directly to screw terminals in the preamplifier. It should be compatible with the associated components mentioned under audio & switching system.

Flat frequency response across the vocal range for uncolored sound

Interchangeable cardioid, super cardioid, and omnidirectional cartridges that provide optimal choice for each application

Sleek, low-profile design for unobtrusive appearance

Balanced, transformer less output for increased immunity to noise over long cable runs

Item # 7

Cordless Lapel Microphone

- **Wireless Handheld microphone and rack based receiver:**
 - Easy-to-use, all-in-one package speakers and presenters
 - High feedback rejection
 - Mute button for full speech control
 - Synchronization via RF remote channel
 - Frequencies tunable in steps of 25 kHz
 - 8 frequency banks with each max 12 presets
- Should be compatible with all the associated components mentioned under Audio & switching system

Item # 8

Wireless Lapel microphone and rack based receiver:

The professional clip-on microphone, that can be easily attached to your clothing, ensuring a powerful sound transmission

Lapel microphone and Bodypack transmitter.

Frequency Response 60 Hz to 12 KHz

Cardioid pickup pattern rejects off-axis sound and provides superior gain before feedback.

Electret condenser cartridge for high sensitivity and a smooth, natural sound.

Reliable at temperature and humidity extremes.

Acoustic windscreen minimizing Air conditioners noise in indoor and wind noise in outdoor applications.

Two AA alkaline batteries provide 10 hours of continuous use.



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Antenna diversity monitors signal strength, adjusting automatically for optimum reception.
Wireless lapelmics should be preferably unidirectional (cardioid)

Item # 9

Ceiling Microphone type 2 Array type

Microphone array to be fixed in ceiling covering 360 degree pickup with coverage of atleast 400 sft area.

Quantity : Min quantity 1 Maximum quantity 4

Note : Only one type of Ceiling microphone specified above will be chosen only after verifying technical and quality standards

Item # 10

Audio Mixer

To integrate atleast 12+ microphones in mono channel and 2 in stereo

Harmonic distortion: Less than 0.1%

Frequency response: 0, +1.0, -3dB 20Hz-20 kHz

Hum and Noise level: -128dBu

Input Power requirement: AC 220-240V; 50/60Hz

Phantom Power: +48 V

Auxillary inputs

Gain controls

All of the above to be used with item Nos. 5, 6, 7 8 and 9

Item 12

Active Speaker - Specifications

- 120+40 watts r.m.s, (Woofers 12"), (Tweeter 1")
- Frequency Response – 65HZ-18 KHZ or better
- Crossover Frequency – 2 KHZ
- Sensitivity – 40 db/0 db (Switchable)



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- Body – Poly Propelene Moulded moisture proof
- should be wall mountable (with brackets and associated accessories)
- Overload protection desirable
- Volume control desirable
- Provision for looping

Item # 13

Headphones – 4 Nos

- Type : Closed –back dynamic
- Driver diameter: 45 mm
- Frequency response : 15-28,000 Hz
- Maximum input power : 1,600 mW at 1 kHz
- Sensitivity : 99 dB
- Impedance : 38 ohms
- Cable : 1.2 – 3.0 m (3.9' – 9.8') Coiled, OFC litz

Item # 14

white ceramic boards for marker pen.. 2 Nos

8 feet x 4 feet Hi- quality white ceramic board for writing application, with a tray that runs to the entire length of 8 feet

Item # 13

12 feet x 4 feet Hi- quality smooth finish green ceramic board for writing with chalk with light fixed in a housing running over the board

Item # 15

Document viewer.

Visualiser / Document Camera: Frame rate 30 fps 12x Optical Zoom 8x Digital Zoom, Auto/Manual focus, 1080p, 720p, SXGA, WXGA, XGA output Resolution, LED lamp, Shooting area upto 420*313mm, RGB Mini D sub input, Mic – yes, 1 audio, RGB output mini D-sub 15-pin connector, female x 1, Composite video output RCA pin jack, HDMI output terminal x 1, Line Out terminal 3.5



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Item # 16

4 X 4 HDMI matrix switcher to connect multiple devices using HDMI port.

- 4x4 fixed I/O sizes
- Supports HD resolutions 480i, 480p, 720p, 1080i and 1080p Supported HDMI specification
- Automatic output relocking —Provides +5 VDC, 250 mA power on the HDMI outputs for external peripheral devices
- Ethernet monitoring and control preferable
- Rack-mountable 2U, full rack width metal enclosure
- Internal universal power supply

Item # 15

Woodworks

Faculty desk:Lecture table made of water proof plywood with provision for cable management, laminated or pre-laminated with shelves with framed glass doors to accommodate conference accessories with lock and key provision of size 12 feet x 2.6 feet x 3 feet height or less as required.

Item # 16

Enclosure for housing video conferencing equipment and accessories with provision for lock/key with LED lights for ambience within enclosure.

Item # 17

Carpet for the faculty area.. Approx. area 12 feet x 5 feet

Item # 19

32 Inches LED display for Monitoring the conference

Main Features : Should support HD video from the codec without compromise in quality

Item # 18

Hard Drive based recorder : 2 Nos

HDMI field recorder , Monitor and deck with at least 2 HDMI interface for recording HD programme out of the video conference codec. The device should have an inbuilt screen to see playback media.



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The media recorded should support professional editing softwares like Final Cut Pro (Mac), Avid Media Composer (windows), Adobe Premiere Pro CS5 or CS 6. Should support atleast 10 hours of non stop recording in full HD

Additional Hard drives – 750 GB 2Nos

Item # 18

Charges for integration

Installation of all equipments including Labour, Design. Operation and Maintenance Manuals - including Equipment Manuals

Training in operation for department staff

Necessary cables and accessories for installing all the above items have to be supplied....
for one venue

AMC: Charges for AMC for total integrated equipment from the last month of equipment supplied under warranty

Important Note :

Please note that the Department has a right to order the quantity lesser than specified and also may not place order for any of the items that may not be required for now. Hence specify the rates in unit as well as the validity of the prices for ordering at a later date.

This will be a two bid system of tender: Technical and Commercial

Only those qualified in Technical bid will be considered for commercial bid.

Prices to be quoted in original currency of OEM delivery at site

(Inclusive of all freight and insurance)

Mandatory

A schematic diagram with list of equipment proposed for integration is compulsory for qualification of the proposal which should be enclosed in the technical bid only

Those vendors who have supplied/ installed/ and integrated similar equipment as listed above in least two locations for the last two years need apply.



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A copy of the letter detailing successful installation from a client is to be enclosed as a proof.

Any wrong information provided will lead to disqualification of the proposal submitted although all other requirements are met.

A profile of the bidder be enclosed in the Technical bid for evaluation

The Department

General Terms and Conditions:

Security Deposit :

1. *Payment will be given after successful installation & configuration.*
2. *Applicable taxes be specified separately*
3. *The rate should be in INR for Indian Products and all others in OEM specified rates*
4. *Total cost should be clearly shown in the quotation with taxes in separate column*
5. *3 Years onsite Vendor Support& OEMWarranty should be clearly mentioned (Proof has to be submitted at the time of installation).*
6. *The product should match each and every specifications mentioned.*
7. *Compliance sheet for the specification has to be attached along with OEM Brochure.*
8. *You should have Technical support staff in Chennai for providing immediate support(24/7).*
9. *All standard accessories to be supplied along with supplied equipment*
10. *The entire work has to be completed within 4 weeks from the date of receipt of Supply/Work Order*

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