



# Indian Institute of Information Technology, Pune

Reference No: IIIT Pune/Enquiry/2019/474

DATE: 16-01-2019

## CALL FOR QUOTATIONS

for

Procurement of Equipments/setup for Microwave Lab and Communication Lab for  
Indian Institute of Information Technology, Pune

**Indian Institute of Information Technology, Pune**

Website: [www.iiitp.ac.in](http://www.iiitp.ac.in)

## CALL FOR QUOTATION

### Name of the Work:

aled quotations are invited from reputed manufactures, suppliers and traders for the Equipments/setups for Communication Lab and Microwave Lab for Indian Institute of Information Technology, Pune as per the **Part 1: Technical Bid and Part 2: Commercial Bid in the prescribed Bid forms.**

*The sealed quotations must be submitted to Director, Indian institute of information Technology Pune, Sudumbre, Talegaon-Chakan Road, Tal. - Maval, Dist.-Pune, Pin-412109, Maharashtra, India in the prescribed format.*

The tender Document can be downloaded from the website [www.iiitp.ac.in](http://www.iiitp.ac.in)

Sr. No.	Tender No & Date	Reference No: IIIT Pune/Enquiry/ 2019/474 DATE: 16-01-2019
1.	Download of tender	From 16-01-2019 to 31-01-2019
2.	Last Date of Receipt of Tenders	31-01-2019 before 15:00 Hours
3.	Opening of Tenders	05-02-2019 at 14:00 Hours
4.	Correspondence Address	Director, Indian institute of information Technology Pune, Sudumbre, Talegaon-Chakan Road, Tal. - Maval, Dist.-Pune, Pin-412109, Maharashtra, India

## 1. Eligibility Criteria:

- 1.1 The bidder must have minimum three years experience in similar kind of work i.e. supply of equipments/furniture in the relevant area. The bidder must have executed at least one purchase order of not less than **Rs. 3.00 Lakhs (Single order) for Part: A and Part: B separately** during last three years.
- 1.2 The bidder must have minimum turnover of **RS. 25.00 Lakhs** during last three financial years. One should also submit prof for the same.
- 1.3 The bidder should attach purchase orders of supply of equipments to renowned educational institutes in last three years.
- 1.4 Bidder should have an appropriate authorization letter from the original vendors in this reference.

### Pre-Qualification / Eligibility Criteria details:

Sr. No.	Pre-Qualification Criteria	Supporting Documents to be enclosed with the Bid
1.	Bidder should be registered in India under Companies Act 1956	Certificate of Incorporation
2.	The bidder must be a renowned Indian/Multinational Company\entrepreneur\vendor with primary business in Technology. It should also be an Authorized system Integrator(s)/partner of the principal, in India.	GST Registration Certificate. Manufacturer's Authorization form of the Original Equipment Manufacturer (if applicable)
3.	Bidder must have experience of at least 03 years in the relevant field of Supplying relevant field Equipments.	Copies of relevant work-order(s)
4.	Bidder should have duly filed Income Tax Returns, Service Tax and other applicable Govt./Statutory body Taxes for the past three years.	Relevant Documents
5.	Prime bidder including the consortium members shall not be under a declaration of ineligibility for corrupt or fraudulent practices or blacklisted with any of the Government agencies.	Self-Certification

Seal and signature of Manager / Representative of the firm  
On behalf of the firm submitting Tender  
Telephone:..... Mobile:.....  
Fax:..... Mail :.....  
Contact Person Name and Designation:

## 2. Bidding Process:

The bidders are informed to submit the **quotations separately for the equipment/setup listed in Part: A and Part: B**. Envelope should superscript on the top that: “**Technical Bid**” and “**Commercial Bid**”.

The quotation should be complete for particular part, partial quotations cannot be accepted for Part A: and Part: B.

**Part 1: Technical Bid** - detailed profile of the agency/organization, eligibility for selection, tender terms & conditions, etc. - to be submitted in a separate sealed cover. This should include **Annexure-I for Part: A/ Annexure-II for Part: B** and documents in support of **turnover, experience, list of similar project, client list, Pre-Qualification / Eligibility Criteria, Appendix –A** etc.

**Part 2: Commercial Bid** - As per the tender, commercial bid should be indicated in Indian rupees in figures as well as words. The final offer given by the bidder shall be with respect to the complete cost of the project.

## 3. Submission of Tender Documents:

### 3.1 Format & signing of Bid Document:

The Bid / Tender document will be submitted in the prescribed format in two parts in sealed envelopes.

**Instructions for submitting bids are given below:**

**3.1.1 Part 1: Technical Bid** – in prescribed format duly signed and sealed containing following documents:

- A covering letter in the format enclosed and **Annexure-I/II**.
- Details of bidders experience and capabilities in the format (**Appendix-A**).

**3.1.2 Part 2: Commercial Bid** - in prescribed format duly signed and sealed.

## 4. Acceptance of Tender conditions:

The **last date for submission** of tender document is **31-01-2019 before 15.00 hrs**. Bids received beyond the closing date / time will not be accepted and will be rejected, unopened.

4.1 Part 1 (**Technical Bid**) will be **opened on 05-02-2019 at 14.00 hrs** at IIIT Pune, Sudumbare, Tal.-Maval, Talegaon-chakan road, Pune-412109, in presence of the bidders’ representatives who wish to attend. In the event of any change in the date of opening, the same will be intimated to all through Email/ SMS/ Telephone.

4.2 Part 2 (**Commercial Bid**) will be opened only after the technical evaluation of tenders and only eligible and technically qualified bidders will be invited for commercial bid opening at the same venue in presence of the bidders’ representatives who wish to attend. The date of opening of commercial bid will be intimated to only eligible and technically qualified bidders. In the event of any change in the date of opening, the same will be intimated to all through Email/ SMS/ Telephone.

5. The Institute reserves the right to accept or reject any bids and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder.
6. Incomplete tenders will be rejected without consideration.
7. Delivery Period for Item:
  - For Part: A and Part B:, the items mentioned in the tender should be delivered within three weeks from the date of purchase order.
8. Execution Period for Supplied Item: The entire project is to be executed/ commissioned within three weeks from the date of purchase order.

**9. Supply and Installation:**

All the equipments must be supplied to **IIIT Pune located at Sadumbare, Talegaon- Chakan Road, Tal: Maval, Dist: Pune**. Any defective component/device will be replaced by bidder at his cost.

10. **Service Support:** Onsite comprehensive Support (parts, labor) has to be provided for a minimum period of 2 years by the bidder from the date of installation and commissioning of systems.

**11. Comprehensive Warranty:**

Two years Comprehensive Warranty. The Supplier shall be fully responsible for the Manufacturer's warranty for all equipment, accessories, spare parts, furniture etc. against any defects arising from design, material, manufacturing, workmanship, or any act or omission of the manufacturer / Bidder or any defect that may develop under normal use of supplied equipment during the warranty period. In case the Bidder is unable to fulfill his obligations during the warranty period, the warranty obligations will fully and automatically devolve upon the Manufacturer of the goods. The Bidder shall be fully responsible for getting the product replaced from the principal company or coordinating the same with the principal company during the warranty period.

**12. Payment Terms & Conditions: Payment:**

100% payment shall be made after successful installation, demonstration and hands on of the setups (i.e. in case of Part: A & Part B), in Department of Electronics and Communication Engineering at Indian Institute of Information Technology, Pune.

13. The vendors shall have to quote for all the items of the quotations for Part: A and Part: B. Partial quotations/incomplete Tenders shall be rejected.
14. Offers in bid should be written in English and price should be written in both figures and words in Indian Rupees.
15. The bid will be evaluated considering the total price of items mentioned in Part A or Part B.
16. The relevant supporting document(s) should be enclosed along with the offer with proper stamp and signature.
17. Quotations received after **last date (i.e. 31-01-2019)** of bid submission will be rejected.
18. No bid will be entertained by E-mail / FAX.
19. The Institute reserves the rights to cancel the tender without any reason thereof.
20. The Institute reserves the rights to split the purchase order.
21. The Institute reserves the rights to cancel any of the items of tender without any reason thereof.

22. The Institute reserves the rights to decide the quantity of any of the items of tender for finalizing the purchase order without any reason.
23. The Institute reserves the right to cancel purchase order, before or after the delivery of material, before making payments without giving any reasons thereof.

-sd-  
Director  
Indian Institute of Information Technology Pune

## Part 1 of Part A: Technical Bid

Equipments/setup/systems for ECE department at Indian Institute of Information Technology Pune

### FORMAT & REQUIREMENTS

1. Tender Ref. No: .....
2. Name of Tenderer: .....
3. Complete office address of Tenderer.....
4. Contact details of authorized person of tenderer who have signed the tender.
  - a. Name.....
  - b. Designation.....
  - c. Phone (Office).....
  - d. Phone (Mobile).....
  - e. E mail.....
5. Due date & Time of submission of quotation: .....
6. Submission of technical confirmation to the requirement.
7. Please specify the make and model. Attach technical brochure.
8. Higher technical specification may be considered subject to competitive price offer.
9. Documents to be enclosed with the Technical bid are as under:
  - a. Copy of authorization letter from principal.
  - b. Duly signed & stamped Tender documents (All pages) as a mark of your acceptance.
  - c. Details of latest Three customers to whom similar supply were made should be submitted in the following format:-

Sr. No.	Name of Client along with contact details
1.	
2.	
3.	
  - d. Supporting information with respect to the technical data, booklets of product. Any product manual brief, test certificates available may be enclosed.
  - e. Copies of GST,PAN, VAT/ TIN duly Signed & Stamped.

Signature of the tenderer  
with stamp

## Annexure- I

**Format of Quotation along with specifications for Equipments supply for ECE Department at Indian Institute of Information Technology Pune**

Sr. No	Requirement with Specifications	Quantity
1	<ul style="list-style-type: none"> <li>• <b>Klystron Power Supply</b></li> </ul> Output Voltage Range 195-400 V Continuously variable Output Current <46 mA Output Better than 0.5% for Regulation $\pm 10$ % variation in Mains supply voltage	02
2	<ul style="list-style-type: none"> <li>• <b>Klystron mount with Klystron Tube</b></li> </ul> Frequency Range 8.2 to 12.4 GHz Klystron Reflex oscillator type Power Output < 0.4W Type Wave guide	02
3	<ul style="list-style-type: none"> <li>• <b>Isolator</b></li> </ul> Frequency Range 8.2 to 12.4 GHz VSWR < 1.2 Insertion loss <3.5 dB Isolation >20 dB Type Wave guide	02
4	<ul style="list-style-type: none"> <li>• <b>Variable attenuator</b></li> </ul> Frequency Range 8.2 to 12.4 GHz VSWR <1.15 Max. Attenuation 20dB Type Continuous	02
5	<ul style="list-style-type: none"> <li>• <b>Frequency Meter (Direct Reading)</b></li> </ul> Frequency Range 8.2 to 12.4 GHz Calibration Accuracy $\pm 2$ % Calibration Increment 10 MHz VSWR <1.05	02
6	<ul style="list-style-type: none"> <li>• <b>Detector Mount, Tunable</b></li> </ul> Frequency Range 8.2 to 12.4 GHz Detector IN 23 or Equivalent Output BNC ( Female ) Connector	02
7	<ul style="list-style-type: none"> <li>• <b>Slotted Section with Probe carriage</b></li> </ul> Frequency Range 8.2 to 12.4 GHz Residual VSWR 1.05	02



	Slope $\pm 0.2$ dB Type Waveguide	
<b>8</b>	<ul style="list-style-type: none"> <li><b>Tunable Probe for Slotted Section</b></li> </ul> Frequency Range 8.2 to 12.4 GHz Detector IN or equivalent Output BNC ( Female ) Connector Type Tunable	<b>02</b>
<b>9</b>	<ul style="list-style-type: none"> <li><b>Matched Termination</b></li> </ul> Frequency Range 8.2 to 12.4 GHz VSWR $< 1.05$ Avg. Power 2 watt Type Waveguide	<b>05</b>
<b>10</b>	<ul style="list-style-type: none"> <li><b>Gunn Power Supply, Digital Display suitable for Gunn Oscillator and Pin Modulator.</b></li> </ul> Variable Voltage Range 0 to 12 Volts Current $< 1$ Amp Regulation 0.2 % for $\pm 10$ % variations in the Mains Supply voltage. Ripple 1 mV rms Modulation Frequency 1 KHz $\pm 10\%$ Modulation Amplitude 0 – 10 volt peak to peak. Output BNC (F) for Gunn Connector Oscillator & TNC (F) Pin Modulator	<b>02</b>
<b>11</b>	<ul style="list-style-type: none"> <li><b>Gunn Oscillator</b></li> </ul> Freq Range 8.2 to 12.4 Ghz Pushing Factor 8 MHz/V Bias Voltage 10 V Nominal Power output 10 mW	<b>02</b>
<b>12</b>	<ul style="list-style-type: none"> <li><b>PIN Modulator</b></li> </ul> Freq range 8.2 to 12.4 GHz Bias voltage 0 to 10 V peak to peak Output Connection TNC (F)	<b>02</b>
<b>13</b>	<ul style="list-style-type: none"> <li><b>Multi Hole Directional Coupler 10 dB</b></li> </ul> Coupling $10 \pm 0.6$ dB Directivity $> 35$ VSWR (Main $< 1.2$ line )	<b>02</b>
<b>14</b>	<ul style="list-style-type: none"> <li><b>Magic TEE</b></li> </ul> Freq range 8.2 to 12.4 GHz	<b>02</b>

<b>15</b>	<ul style="list-style-type: none"> <li>• <b>E-plane TEE</b> Freq range 8.2 to 12.4 GHz</li> </ul>	<b>02</b>
<b>16</b>	<ul style="list-style-type: none"> <li>• <b>H-plane TEE</b> Freq range 8.2 to 12.4 GHz</li> </ul>	<b>02</b>
<b>17</b>	<ul style="list-style-type: none"> <li>• <b>T-Circulator</b> VSWR &lt;1.2 dB Min Insertion loss 0.4 dB Isolation &gt;20 dB</li> </ul>	<b>02</b>
<b>18</b>	<ul style="list-style-type: none"> <li>• <b>Fixed Attenuator</b> Attenuation value 16 dB VSWR &lt;1.08 Avg. Power 2 W Accuracy <math>\pm 0.5</math> dB</li> </ul>	<b>02</b>
<b>19</b>	<ul style="list-style-type: none"> <li>• <b>VSWR meter</b> Scale Selector Normal Expand and 0.5 dB Meter Scale SWR 1-4, SWR 3-10, expanded SWR 1-1.3, dB 0-10 expanded dB 0-2. Gain Control Adjusts the reference level, variable range 0- 10 dB approx Input Connector BNC (F) Frequency 1000 Hz <math>\pm 10</math> % Power 230 volts A.C <math>\pm 10</math> %, 50Hz</li> </ul>	<b>02</b>
<b>20</b>	<ul style="list-style-type: none"> <li>• <b>Radiation Pattern Turn Table includes 360 degree radiation pattern (mechanical) (Complete set up)</b> Freq range 8.2 to 12.4 GHz</li> </ul>	<b>1</b>
<b>21</b>	<ul style="list-style-type: none"> <li>• <b>Pyramidal Horn Antenna</b> Freq range 8.2 to 12.4 GHz</li> </ul>	<b>02</b>
<b>22</b>	<ul style="list-style-type: none"> <li>• <b>Accessories</b> Cooling fans(2), Nuts and bolts, Wave guide Stands (4 )and BNC-BNC cables(4)</li> </ul>	

## Part 2 of Part A: Commercial Bid

Equipments/ setups/ systems for ECE department at IIIT Pune

### Part 2: Commercial Bid

#### FORMAT & REQUIREMENTS

Tender Ref. No.: .....

Name of the Tenderer/Bidder: .....

The offer with rates for the schedule of requirements of items, as elaborated under, to be submitted.

Adhering to the format given below is a pre-requisite for considering your quotations:

However quantity may increase/ decrease

The format of commercial offer is as below:

Sr. No	Requirement with Specifications	Quantity	Unit Price in INR	Total Basic Price in INR
1	<ul style="list-style-type: none"> <li>• <b>Klystron Power Supply</b></li> <li>Output Voltage Range 195-400 V</li> <li>Continuously variable</li> <li>Output Current &lt;46 mA</li> <li>Output Better than 0.5% for</li> <li>Regulation <math>\pm 10</math> % variation in Mains supply voltage</li> </ul>	02		
2	<ul style="list-style-type: none"> <li>• <b>Klystron mount with Klystron Tube</b></li> <li>Frequency Range 8.2 to 12.4 GHz</li> <li>Klystron Reflex oscillator type</li> <li>Power Output &lt; 0.4W</li> <li>Type Wave guide</li> </ul>	02		
3	<ul style="list-style-type: none"> <li>• <b>Isolator</b></li> <li>Frequency Range 8.2 to 12.4 GHz</li> <li>VSWR &lt; 1.2</li> <li>Insertion loss &lt;3.5 dB</li> <li>Isolation &gt;20 dB</li> <li>Type Wave guide</li> </ul>	02		
4	<ul style="list-style-type: none"> <li>• <b>Variable attenuator</b></li> <li>Frequency Range 8.2 to 12.4 GHz</li> <li>VSWR &lt;1.15</li> <li>Max. Attenuation 20dB</li> <li>Type Continuous</li> </ul>	02		
5	<ul style="list-style-type: none"> <li>• <b>Frequency Meter (Direct Reading)</b></li> </ul>	02		

	<p>Frequency Range 8.2 to 12.4 GHz  Calibration Accuracy <math>\pm 2\%</math>  Calibration Increment 10 MHz  VSWR &lt;1.05</p>			
<b>6</b>	<ul style="list-style-type: none"> <li><b>Detector Mount, Tunable</b></li> </ul> <p>Frequency Range 8.2 to 12.4 GHz  Detector IN 23 or Equivalent  Output BNC ( Female )  Connector</p>	02		
<b>7</b>	<ul style="list-style-type: none"> <li><b>Slotted Section with Probe carriage</b></li> </ul> <p>Frequency Range 8.2 to 12.4 GHz  Residual VSWR 1.05  Slope <math>\pm 0.2</math> dB  Type Waveguide</p>	02		
<b>8</b>	<ul style="list-style-type: none"> <li><b>Tunable Probe for Slotted Section</b></li> </ul> <p>Frequency Range 8.2 to 12.4 GHz  Detector IN or equivalent  Output BNC ( Female )  Connector  Type Tunable</p>	02		
<b>9</b>	<ul style="list-style-type: none"> <li><b>Matched Termination</b></li> </ul> <p>Frequency Range 8.2 to 12.4 GHz  VSWR &lt;1.05  Avg. Power 2 watt  Type Waveguide</p>	05		
<b>10</b>	<ul style="list-style-type: none"> <li><b>Gunn Power Supply, Digital Display suitable for Gunn Oscillator and Pin Modulator.</b></li> </ul> <p>Variable Voltage Range 0 to 12 Volts  Current &lt;1 Amp  Regulation 0.2 % for <math>\pm 10\%</math> variations in the Mains Supply voltage.  Ripple 1 mV rms  Modulation Frequency 1 KHz <math>\pm 10\%</math>  Modulation Amplitude 0 – 10 volt peak to</p>	02		

	peak. Output BNC (F) for Gunn Connector Oscillator &TNC (F) Pin Modulator			
<b>11</b>	<ul style="list-style-type: none"> <li>• <b>Gunn Oscillator</b></li> </ul> Freq Range 8.2 to 12.4 Ghz Pushing Factor 8 MHz/V Bias Voltage 10 V Nominal Power output 10 mW	02		
<b>12</b>	<ul style="list-style-type: none"> <li>• <b>PIN Modulator</b></li> </ul> Freq range 8.2 to 12.4 GHz Bias voltage 0 to 10 V peak to peak Output Connection TNC (F)	02		
<b>13</b>	<ul style="list-style-type: none"> <li>• <b>Multi Hole Directional Coupler 10 dB</b></li> </ul> Coupling $10 \pm 0.6$ dB Directivity >35 VSWR (Main <1.2 line )	02		
<b>14</b>	<ul style="list-style-type: none"> <li>• <b>Magic TEE</b></li> </ul> Freq range 8.2 to 12.4 GHz	02		
<b>15</b>	<ul style="list-style-type: none"> <li>• <b>E-plane TEE</b></li> </ul> Freq range 8.2 to 12.4 GHz	02		
<b>16</b>	<ul style="list-style-type: none"> <li>• <b>H-plane TEE</b></li> </ul> Freq range 8.2 to 12.4 GHz	02		
<b>17</b>	<ul style="list-style-type: none"> <li>• <b>T-Circulator</b></li> </ul> VSWR <1.2 dB Min Insertion loss 0.4 dB Isolation >20 dB	02		
<b>18</b>	<ul style="list-style-type: none"> <li>• <b>Fixed Attenuator</b></li> </ul> Attenuation value 16 dB VSWR <1.08 Avg. Power 2 W Accuracy $\pm 0.5$ dB	02		
<b>19</b>	<ul style="list-style-type: none"> <li>• <b>VSWR meter</b></li> </ul>	02		

	Scale Selector Normal Expand and 0.5 dB Meter Scale SWR 1-4, SWR 3-10, expanded SWR 1-1.3, dB 0-10 expanded dB 0-2. Gain Control Adjusts the reference level, variable range 0- 10 dB approx Input Connector BNC (F) Frequency 1000 Hz $\pm$ 10 % Power 230 volts A.C $\pm$ 10 %, 50Hz			
<b>20</b>	<ul style="list-style-type: none"> <li><b>Radiation Pattern Turn Table includes 360 degree radiation pattern (mechanical) (Complete set up)</b> Freq range 8.2 to 12.4 GHz</li> </ul>	1		
<b>21</b>	<ul style="list-style-type: none"> <li><b>Pyramidal Horn Antenna</b> Freq range 8.2 to 12.4 GHz</li> </ul>	02		
<b>22</b>	<ul style="list-style-type: none"> <li><b>Accessories</b> Cooling fans(2), Nuts and bolts, Wave guide Stands (4 )and BNC-BNC cables(4)</li> </ul>			
<b>Total basic Price in INR</b>				
<b>Taxes in INR</b>				
<b>Grand Total Price (Total basic +Taxes) in INR</b>				

The rate quoted shall be in accounting units (A/U) and should be quoted as basic price, all other costs including freight, insurance, packaging and forwarding duties/levies and taxes.

Signature of the tenderer  
with stamp

## Part 1 of Part B: Technical Bid

Equipments/setup/systems for ECE department at Indian Institute of Information Technology Pune

### FORMAT & REQUIREMENTS

1. Tender Ref. No: .....
2. Name of Tenderer: .....
3. Complete office address of Tenderer.....
4. Contact details of authorized person of tenderer who have signed the tender.
  - a. Name.....
  - b. Designation.....
  - c. Phone (Office).....
  - d. Phone (Mobile).....
  - e. E mail.....
5. Due date & Time of submission of quotation: .....
6. Submission of technical confirmation to the requirement.
7. Please specify the make and model. Attach technical brochure.
8. Higher technical specification may be considered subject to competitive price offer.
9. Documents to be enclosed with the Technical bid are as under:
  - a. Copy of authorization letter from principal.
  - b. Duly signed & stamped Tender documents (All pages) as a mark of your acceptance.
  - c. Details of latest Three customers to whom similar supply were made should be submitted in the following format:-

Sr. No.	Name of Client along with contact details
1.	
2.	
3.	

- d. Supporting information with respect to the technical data, booklets of product. Any product manual brief, test certificates available may be enclosed.
- e. Copies of GST,PAN, VAT/ TIN duly Signed & Stamped.

Signature of the tenderer  
with stamp

## Annexure- II

### Format of Quotation along with specifications for Equipments supply for ECE Department at Indian Institute of Information Technology Pune

Sr. No	Requirement	Quantity
1.	<p><b>DSB-FC AMPLITUDE MODULATION/ DEMODULATION TRAINER</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Power supply: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave Frequency Range: Up to 10 KHz Amplitude: 0 to 3 Vpp. ( Both Variable)</li> <li>• On Board RF carrier signal generator. Frequency Range: Up to 500KHz. Amplitude: 0 to 6 Vpp. (Both Variable)</li> <li>• Modulator Type: Balanced modulator.</li> <li>• Demodulator Type: Envelope Detector (Diode detector).</li> <li>• All parts are soldered on single PCB with complete Block diagram screen-printed.</li> <li>• Accessories: Training Manual and Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2mm Test Point is used to see Signal on DSO and Spectrum analyzer.</li> </ul>	02
2.	<p><b>DSB-SC AMPLITUDE MODULATION/ DEMODULATION TRAINER</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave Frequency Range: up to 10 KHz Amplitude: 0 to 3 Vpp. ( Both Variable)</li> <li>• On Board RF carrier signal generator. Frequency Range: Up to 500 KHz. Amplitude: 0 to 6 Vpp. ( Both Variable)</li> <li>• Modulator Type: Balanced modulator using IC1496</li> <li>• Demodulator Type: Product detector using Ic1496 with Low pass filter</li> <li>• All parts are soldered on single PCB with complete Block diagram screen-printed.</li> <li>• Standard Accessories: Training Manual and Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO and Spectrum</li> <li>• Spectrum Analysis of DSB with the help of Spectrum Analyzer</li> </ul>	02
3.	<p><b>SSB-SC AMPLITUDE MODULATION DEMODULATION TRAINER by Phase Shift Method</b></p> <p>SPECIFICATIONS</p>	02



	<ul style="list-style-type: none"> <li>• Power supply: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave Frequency Range: up to 10KHz Amplitude: 0 to 3 Vpp. ( Both Variable)</li> <li>• On Board RF carrier signal generator.</li> <li>• Frequency Range: Up to 500 KHz.</li> <li>• Amplitude: 0 to 6 Vpp. ( Both Variable)</li> <li>• Modulator Type : Sine Modulation , cos modulation , adder</li> <li>• Demodulator Type: Product detector with Low Pass Filter -Cut off Freq. 3.4 KHz.</li> <li>• All parts are soldered on single PCB with complete circuit diagram screen-printed.</li> <li>• Standard Accessories: 1. A Training Manual. 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO and Spectrum</li> <li>• Spectrum Analysis of SSB with help of Spectrum Analyzer</li> </ul>	
4.	<p><b>SSB-SC AMPLITUDE MODULATION DEMODULATION TRAINER by filter method</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave Frequency Range: up to 10KHz Amplitude: 0 to 3 Vpp. ( Both Variable)</li> <li>• On Board RF carrier signal generator.</li> <li>• Frequency Range: Up to 500 KHz.</li> <li>• Amplitude: 0 to 6 Vpp. ( Both Variable)</li> <li>• On Board Band Pass Filter: 452-458 KHz Bandwidth</li> <li>• Modulator Type: Filter Method</li> <li>• Demodulator Type: Product detector with Low Pass Filter -Cut off Freq. 3.4 KHz.</li> <li>• All parts are soldered on single PCB with complete circuit diagram screen-printed.</li> <li>• Standard Accessories: 1. A Training Manual. 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO and Spectrum</li> <li>• Spectrum Analysis of SSB with help of Spectrum Analyzer</li> </ul>	02
5.	<p><b>Time Division Multiplexing and De-multiplexing.</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board four Input signals generators.</li> <li>• Sine wave: Frequency 250 Hz - 2 Vpp</li> <li>• Sine wave: Frequency 500 Hz - 2 Vpp</li> <li>• Sine wave: Frequency 1 KHz - 2 Vpp.</li> <li>• Sine wave : Frequency 2KHz - 2 Vpp</li> </ul>	02

	<ul style="list-style-type: none"> <li>• On Board Sampling Pulse signal generator.</li> <li>• Frequency Range: 2 KHz to 64 KHz.</li> <li>• Modulator Sections : Multiplexer</li> <li>• Demodulator Sections: De-multiplexer &amp; Low Pass Filter</li> <li>• Standard Accessories: 1. A Training Manual. 2. Connecting Patch cords.</li> <li>• The parts soldered on the front side of SINGLE PCB with complete circuit diagram screen printed.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO</li> </ul>	
6.	<p><b>Frequency Division Multiplexing and De-multiplexing</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply: +15V, -15V, +5V.</li> <li>• On Board AF Modulating signal generator - Sine wave</li> <li>• Frequency Range: 150 Hz &amp; 400Hz - 2 Nos.</li> <li>• Amplitude: 3 Vpp.</li> <li>• On Board Main RF carrier signal generator.</li> <li>• Frequency Range : 150 KHz &amp; 300KHz ( Two Signal )</li> <li>• Amplitude : 2Vpp</li> <li>• On Board Sub-carrier signal generator.</li> <li>• Frequencies: 16 KHz and 32 KHz.</li> <li>• Amplitude: TTL level.</li> <li>• On Board ADDER , Demodulator and LPF</li> <li>• Multiplexer Type: Balanced modulators and Band pass filters.</li> <li>• De-multiplexer Type: Balanced modulators and Band pass filters.</li> <li>• Standard Accessories: 1. Experimental and Circuit Description Manual. 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO</li> </ul>	02
7.	<p><b>Frequency Modulation using reactance modulator, computation of modulation index</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave</li> <li>• Frequency Range : 1KHz</li> <li>• Amplitude: 0 to 5 Vpp.</li> <li>• Modulator Type : Reactance modulator</li> <li>• Demodulator Type : Detuned Resonant Detector</li> <li>• Standard Accessories: 1. A Training Manual.</li> <li>• 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO</li> </ul>	02

8.	<p><b>Phase modulator</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board Modulating Digital Data signal generator.</li> <li>• Modulator Type: Balanced Modulator as Phase Modulator.</li> <li>• Demodulator Type: Balanced Modulators, Squarer.</li> <li>• All parts are soldered on single PCB of with complete circuit diagram Screen-printed.</li> <li>• Standard Accessories: 1. A Training Manual. 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO</li> </ul>	02
9.	<p><b>Quadrature Amplitude Modulation and demodulation kit [8-QAM]</b></p> <p>Specification</p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• Built in two pattern generator.</li> <li>• Four different Phase are transmitted with two different amplitude</li> </ul>	02

## Part 2 of Part B: Commercial Bid

Equipments/ setups/ systems for ECE department at IIIT Pune

### Part 2: Commercial Bid

#### FORMAT & REQUIREMENTS

Tender Ref. No.: .....

Name of the Tenderer/Bidder: .....

The offer with rates for the schedule of requirements of items, as elaborated under, to be submitted.

Adhering to the format given below is a pre-requisite for considering your quotations:

However quantity may increase/ decrease

The format of commercial offer is as below:

Sr. No	Requirement	Quantity	Unit Price in INR	Total Basic Price in INR
1.	<p><b>DSB-FC AMPLITUDE MODULATION/ DEMODULATION TRAINER</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Power supply: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave Frequency Range: Up to 10 KHz Amplitude: 0 to 3 Vpp. ( Both Variable)</li> <li>• On Board RF carrier signal generator. Frequency Range: Up to 500KHz. Amplitude: 0 to 6 Vpp. (Both Variable)</li> <li>• Modulator Type: Balanced modulator.</li> <li>• Demodulator Type: Envelope Detector (Diode detector).</li> <li>• All parts are soldered on single PCB with complete Block diagram screen-printed.</li> <li>• Accessories: Training Manual and Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2mm Test Point is used to see Signal on DSO and Spectrum analyzer.</li> </ul>	02		
2.	<p><b>DSB-SC AMPLITUDE MODULATION/ DEMODULATION TRAINER</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave Frequency Range: up to 10 KHz Amplitude: 0 to 3 Vpp. ( Both Variable)</li> </ul>	02		

	<ul style="list-style-type: none"> <li>• On Board RF carrier signal generator. Frequency Range: Up to 500 KHz.</li> <li>• Amplitude: 0 to 6 Vpp. ( Both Variable)</li> <li>• Modulator Type: Balanced modulator using IC1496</li> <li>• Demodulator Type: Product detector using Ic1496 with Low pass filter</li> <li>• All parts are soldered on single PCB with complete Block diagram screen-printed.</li> <li>• Standard Accessories: Training Manual and Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO and Spectrum</li> <li>• Spectrum Analysis of DSB with the help of Spectrum Analyzer</li> </ul>			
3.	<p><b>SSB-SC AMPLITUDE MODULATION DEMODULATION TRAINER by Phase Shift Method</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave Frequency Range: up to 10KHz Amplitude: 0 to 3 Vpp. ( Both Variable)</li> <li>• On Board RF carrier signal generator.</li> <li>• Frequency Range: Up to 500 KHz.</li> <li>• Amplitude: 0 to 6 Vpp. ( Both Variable)</li> <li>• Modulator Type : Sine Modulation , cos modulation , adder</li> <li>• Demodulator Type: Product detector with Low Pass Filter -Cut off Freq. 3.4 KHz.</li> <li>• All parts are soldered on single PCB with complete circuit diagram screen-printed.</li> <li>• Standard Accessories: 1. A Training Manual. 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO and Spectrum</li> <li>• Spectrum Analysis of SSB with help of Spectrum Analyzer</li> </ul>	02		
4.	<p><b>SSB-SC AMPLITUDE MODULATION DEMODULATION TRAINER by filter method</b></p>	02		

	<p><b>SPECIFICATIONS</b></p> <ul style="list-style-type: none"> <li>• Power supply: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave Frequency Range: up to 10KHz Amplitude: 0 to 3 Vpp. ( Both Variable)</li> <li>• On Board RF carrier signal generator.</li> <li>• Frequency Range: Up to 500 KHz.</li> <li>• Amplitude: 0 to 6 Vpp. ( Both Variable)</li> <li>• On Board Band Pass Filter: 452-458 KHz Bandwidth</li> <li>• Modulator Type: Filter Method</li> <li>• Demodulator Type: Product detector with Low Pass Filter -Cut off Freq. 3.4 KHz.</li> <li>• All parts are soldered on single PCB with complete circuit diagram screen-printed.</li> <li>• Standard Accessories: 1. A Training Manual. 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO and Spectrum</li> <li>• Spectrum Analysis of SSB with help of Spectrum Analyzer</li> </ul>			
5.	<p><b>Time Division Multiplexing and De-multiplexing.</b></p> <p><b>SPECIFICATIONS</b></p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board four Input signals generators.</li> <li>• Sine wave: Frequency 250 Hz - 2 Vpp</li> <li>• Sine wave: Frequency 500 Hz - 2 Vpp</li> <li>• Sine wave: Frequency 1 KHz - 2 Vpp.</li> <li>• Sine wave : Frequency 2KHz - 2 Vpp</li> <li>• On Board Sampling Pulse signal generator.</li> <li>• Frequency Range: 2 KHz to 64 KHz.</li> <li>• Modulator Sections : Multiplexer</li> <li>• Demodulator Sections: De-multiplexer &amp; Low Pass Filter</li> <li>• Standard Accessories: 1. A Training Manual. 2. Connecting Patch cords.</li> <li>• The parts soldered on the front side of SINGLE PCB with complete circuit diagram screen printed.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO</li> </ul>	02		

6.	<p><b>Frequency Division Multiplexing and De-multiplexing</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply: +15V, -15V, +5V.</li> <li>• On Board AF Modulating signal generator - Sine wave</li> <li>• Frequency Range: 150 Hz &amp; 400Hz - 2 Nos.</li> <li>• Amplitude: 3 Vpp.</li> <li>• On Board Main RF carrier signal generator.</li> <li>• Frequency Range : 150 KHz &amp; 300KHz ( Two Signal )</li> <li>• Amplitude : 2Vpp</li> <li>• On Board Sub-carrier signal generator.</li> <li>• Frequencies: 16 KHz and 32 KHz.</li> <li>• Amplitude: TTL level.</li> <li>• On Board ADDER , Demodulator and LPF</li> <li>• Multiplexer Type: Balanced modulators and Band pass filters.</li> <li>• De-multiplexer Type: Balanced modulators and Band pass filters.</li> <li>• Standard Accessories: 1. Experimental and Circuit Description Manual. 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO</li> </ul>	02		
7.	<p><b>Frequency Modulation using reactance modulator, computation of modulation index</b></p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board AF Modulating signal generator - Sine wave</li> <li>• Frequency Range : 1KHz</li> <li>• Amplitude: 0 to 5 Vpp.</li> <li>• Modulator Type : Reactance modulator</li> <li>• Demodulator Type : Detuned Resonant Detector</li> <li>• Standard Accessories: 1. A Training Manual.</li> <li>• 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO</li> </ul>	02		
8.	<p><b>Phase modulator</b></p> <p>SPECIFICATIONS</p>	02		

	<ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• On Board Modulating Digital Data signal generator.</li> <li>• Modulator Type: Balanced Modulator as Phase Modulator.</li> <li>• Demodulator Type: Balanced Modulators, Squarer.</li> <li>• All parts are soldered on single PCB of with complete circuit diagram Screen-printed.</li> <li>• Standard Accessories: 1. A Training Manual. 2. Connecting Patch cords.</li> <li>• All component are used in kits are visible with acrylic Cover</li> <li>• 2mm test points are for Interconnection on Kits and 2cm Test Point is used to see Signal on CRO</li> </ul>			
9.	<p><b>Quadrature Amplitude Modulation and demodulation kit [8-QAM]</b></p> <p>Specification</p> <ul style="list-style-type: none"> <li>• Power supply requirement: 230V AC, 50 Hz.</li> <li>• Built in IC based power supply.</li> <li>• Built in two pattern generator.</li> <li>• Four different Phase are transmitted with two different amplitude</li> </ul>	02		
<b>Total Basic Amount =</b>				
<b>Taxes =</b>				
<b>Grand total (Total Amount + Taxes) =</b>				

The rate quoted shall be in accounting units (A/U) and should be quoted as basic price, all other costs including freight, insurance, packaging and forwarding duties/levies and taxes.

Signature of the tenderer  
with stamp



**[Covering letter to submitted by the bidder on letter head]**

To,  
The Director,  
Indian Institute of Information Technology Pune,  
Sudumbare, Talegaon – Chakan Road, Tal.- Maval, Dist.-Pune  
Pune -412109,

Subject: Tender for Part: A/ Part: B at Indian Institute of Information Technology Pune.

Sir,

I have carefully gone through the tender document regarding the prequalification of agencies/ vendors for Analog Communication Laboratory Equipments, at Indian Institute of Information Pune.

I shall be bidding in this tender as the sole representative of my company. I hereby declare that

1. All the information related to my company, customer base, projects, financial details, data sheet of the products offered etc., provided in my offer is true and without any alteration /modification.
2. All the provisions of this tender document are acceptable to my company. No violation of the terms and conditions as mentioned in the tender document has been made.
3. I declare that my company or any member of the company has not been debarred / black listed by any Government / Semi –Government organizations in India.
4. I certify that the period of validity of bid is 120 (one hundred and twenty) days from the last date of submission of proposal I further certify that I am authorized signatory of my company and I am, therefore competent to make this declaration.

Yours faithfully,

(Signature of the bidder)

Seal and signature of Manager  
/Representative of the company/firm On  
behalf of the company/  
Firm submitting tender  
Telephone: .....  
Mobile: .....  
Fax: .....  
Mail: .....  
Contact Person Name: .....  
Contact Person Designation: .....

**Appendix –A (To be filled up by the bidder)  
Following details required for all bidders**

Sr. No.	Name & Full Address of the firm:	Necessary Documents Submitted (Yes/No)
1.	Registered Office with Address (Copy of registration certificate of firm may be enclosed)	
2.	Pan no.	
3.	Previous Purchase order details	
4.	Whether limited company or Pvt. ltd. or Partnership	
5.	Name & Addresses of the person who will represent the firm while dealing with the Institute.	
6.	GST Registration number	
7.	Do you have Technology as your primary business; and are You An Original Equipment Manufacturer Or Authorized System Integrator(s) ?	
8.	Do you have experience for at least 3 years in the relevant field of supply, installation, commissioning and maintenance of similar project? Have you completed at least one similar project during the previous three years?	
9.	Are you authorized by your principal (for all the respective items) to quote the bid?	
10.	Have you duly filed Income Tax Returns, Service Tax and other applicable taxes for the past three years?	
11.	Have you been blacklisted by any government authority in India? If so, then you will not be eligible. Submit Self-Certification stating you are not blacklisted in the past.	

Seal and signature of Manager /Representative of the firm On behalf of the firm submitting Tender

Telephone:.....  
 Mobile:.....  
 Fax:.....  
 Mail:.....  
 Contact Person Name:.....  
 Contact Person Designation:.....