

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY **BURLA, SAMBALPUR, ODISHA - 768018**

TENDER CALL NOTICE

Advt. No. VSSUT/EL&TCE/ 335

Sealed Tenders are invited by the undersigned from the intending reputed original equipment manufacturers/Direct importers/Registered authorized dealers and experienced firms for supply of equipments for different Laboratories of Electronics and Telecommunication Engineering Department, VSSUT, Burla. The last date of submission of Tender is 11.05.2017 up to 12:30 PM. The technical bid shall be opened on 16.05.2017 at 11:00 AM. For details visit University website www.vssut.ac.in.

Sd/

Registrar

Memo No. VSSUT/EL&TCE/ 335

Date: 18 /04/2017

Date: 18/04/2017

Copy to:

- 1. M/s Display lines, 219, Saheed Nagar, Bhubaneswar-751007 with a request to publish the above advertisement in all edition of The Samaj (Odia daily) and (Odisha + East....) edition of The Times of India (English daily) newspapers using minimum space at I & PR approved/lowest rates. The bills may be sent to the Registrar, VSSUT, Burla- 768018 in TRIPLICATE along with copies of the paper in which the publication is made, for necessary payment.
- 2. The University/Department Notice Board for publicity.
- 3. Dean F&P, with a request to hoist the tender call notice in the University web site www.vssut.ac.in for wide publicity.
- 4. HOD, El & TCE for information and necessary action
- 5. S.O. Accounts, for information and necessary action. The expenses shall be met From RUSA fund of the University.
- 6. PA to Vice chancellor for kind information of Hon'ble Vice chancellor.
- 7. PA to Registrar for record. This is based on allotment of RUSA fund to the Dept by letter no VSSUT/F&P - 98/1347/2016 dt. 28/04/2016 and subsequent approval of the proposal for procurement of equipments by Hon'ble Vice Chancellor dt 25/03/2017.

SECTION I: INVITATION FOR BIDS (IFB)

Sealed Tenders in two bids system (Technical Bid and Price Bid) are invited by the "The Registrar, Veer Surendra Sai University of Technology, Odisha, Burla" from the original equipment manufacturers/authorized distributors/ dealers for supply of Instrument, equipment, software etc. of reputed make (National/ International) for the different laboratories of Electronics and Tele Communication Engineering Department, VSSUT Burla, Odisha. The intending Bidders may download the Tender Documents directly from the website available at http://www.vssut.ac.in.

The cost of tender document of Rupees 500/- (Non-refundable) is to be submitted in shape of Demand Draft drawn in favor of "The Registrar, Veer Surendra Sai University of Technology, Burla" payable at State Bank of India, Burla along with the technical Bid. In case of any bid clarification, responsibility lies with the bidders to collect the same from the website and the purchaser shall have no responsibility for any delay/omission on part of the bidder. The envelope containing the Tender must be super-scribed as "TENDER FOR ELECTRONICS & TELECOMUNICATION ENGINEERING DEPARTMENT" with tender notice no. & date.

TIME SCHEDULE:

- i) Date of commencement of downloading bidding document: 18.04.2017 at 11.00 AM
- ii) Last date and time for Receipt of bids: 11.05.2017 up to 12.30 PM
- iii) Time and date of opening of Tender & technical bid: 16.05.2017 at 11.00 AM
- iv) Time and date of opening of price bid: To be notified later on, after verification of technical bid

<u>Place of opening of tender and address for communication and receipt of bid documents</u> (by registered/speed post only):

THE REGISTRAR
VEER SURENDRA SAI UNIVERSITY OF TECHNLOGY, ODISHA,
At- Burla, Po-Burla Engineering College, Dist-Sambalpur-768018,
Tel. No-0663- 2430211, Fax No-0663-2430204

REGISTRAR

J.M.

SECTION-II: GENERAL TERMS AND CONDITIONS

GENERAL TERMS & CONDITIONS OF CONTRACT FOR SUPPLY, INSTALLATION AND DEMONSTRATION OF THE INSTRUMENTS, EQUIPMENT REQUIRED FOR DEPARTMENT OF ELECTRONICS AND TELE COMMUNICATION ENGINEERING, VSSUT, BURLA, ODISHA.

1. Document Establishing Bidder's Eligibility & Qualification

The Bidders shall furnish as part of the Bid the following Documents establishing Bidder eligibility and qualification to the Purchaser's satisfaction.

- 1.1. Manufacturer / Authorized Distributor / Dealer having valid license / certificates for the quoted item and the direct Importers holding valid Import License Manufacturer / Authorized Distributor / Dealer of the product are eligible to participate in the Bid.
- 1.2. Bidders should have **ISI or equivalent** certification for quoted instruments and equipment. However, the Purchaser shall have the right to consider the items where ISI or equivalent certification is not applicable.
- 1.3. The Bidder whether manufacturer/ distributor/ dealer must have experience of supply and installation of the quoted items in reputed Government Institutions / Public Undertakings / reputed Private Institutions within India during last preceding 3(Three) years reckoned from the date of bid opening and the details must be submitted along with documentary proof.
- 1.4. The Bidders shall have to produce document in support of their service associates **nearest to Bhubaneswar/ Sambalpur,**Odisha.
- **1.5.** Bidder shall have to provide operational Training for the installed **Instrument/software** to one Official of the department at Suppliers cost at least for 2days.
- 1.6. The Bidder shall quote item of one reputed Brand/model with all accessories in complete to perform functionality of equipment and software.
- 1.7. Manufacturer has to submit copy of Industry Registration of quoted products and Tax Registration Certificate issued from competent authority. In case of Authorized Distributor / Dealer/Suppliers have to submit Manufacture authorization along with copy of above documents of Manufacture Industry.

2. Document Establishing Goods Eligibility

The instruments and equipment offered by the bidder against the schedule of requirement should be in accordance with the stipulated specifications and of brand/model of repute.

(N.B: Variation in specification is allowed upto±5% in case of Equipments)

- 2. 1 The documentary evidence establishing the brand and the model may be in the form of literature, pamphlets, manuals, drawing, circuit diagram etc.
- 2.2 Detailed description of instruments and equipment with essential technical and performance characteristics may also be furnished.
- 2.3 The Bidders should clearly mention in their bid regarding the compatibility of the various equipment or the individual units.
- 2.4 The quantity shown in the bid can be increased or decreased to any extent depending upon the Actual requirement.
- 2.5 The instruments and equipment should have testing certificate for its satisfactory functioning.

3. Technical Bid (COVER -A)

The following document should be submitted in Cover-A.

3.1. Technical details of the instruments, equipment and software as per **Annexure-V**

- 3.2 Copy of the manufacturing license/ import license/ Authorized Distributor/ Dealer certificates
- 3.3 Copy of the authorization from the Manufacturing Company in case of Authorized Distributor /Dealer. In **Annexure-III** along with Manufacturer Industry Registration and Tax Registration Certificate.
- 3.4 VAT/ST clearance certificate up to **date** where applicable.
- 3.5 Performance/ Market standing certificate establishing that the Bidders have executed supply of similar items as mentioned in Schedule of Requirement of instruments and equipment to different Govt. Organizations/ Government PSUs / reputed Private Institutions. (proof of documents)
- 3.6 Copy of the IT PAN Card.
- 3.7 Detail name, address, telephone no. fax, e-mail of the firm and of the Director/ Managing Director/ Proprietor of the firm (As per Annexure IV)
- 3.8 Address, Telephone No., e-mail, Fax of the Branch Office/ Contact Person/ Liasoning Office in Odisha. (As per **Annexure IV**)
- 3.9Power of Attorney/ Authorization to a person for liasoning and monitoring the business on behalf of the manufacturer / bidder but not entitled to raise the bills.
- 3.10 Document if any to establish the recognition of the manufacturing unit in respect of ISO or Equivalent.
- 3.12 The original bid document signed & sealed by authorized person in each page as a token of acceptance of all terms and conditions of the tender with original receipt.
- 3.13 Documentary evidence establishing that the instruments & equipment and ancillary services to be supplied by the Bidders shall confirm to the Bidding Document.
- 3.14 Documentary evidence establishing that the mentioned equipment in the bid have been delivered by the firm to Institutes of National repute.
- 3.14 Any deviation in the specification of the item including standard accessories / optional accessories in complete for functionality of Equipment should be marked in **bold letters. (N.B: Variation in specification is allowed upto±5% in case of Equipment).**
- 3.15 The details of the service station / service associates nearest to Bhubaneswar/Sambalpur shall have to be submitted to qualify in the technical bid.
- 3.16 Demand drafts for cost of tender document forRs500/- & EMD at least @ 2% of the quoted value.

4. Price Bid (COVER -B)

- 4.1 The hard copy of price bid giving the rates for various instruments, equipment and software should be submitted along with sealed soft copy of **price bid in Excel format through CD** in separate sealed cover here in after called **Cover B (Price Bid)**. The **Price Bid (Cover B)** of the bidders who qualify in **Technical Bid (Cover A)** will only be opened and the opening date will be communicated through **E-mail/Fax**.
- 4.2 The price of each item shall be quoted as per the prescribed Price Schedule Format at **Annexure-I** along with price break up of custom duty, Excise Duty, CST, Packing, Forwarding and Handling charges, Insurance charges, ET, freight up to destination including unloading, VAT, Entry Tax, commissioning including testing and training with total price per item at FOR destination. The bidders are required to submit the individual price of each instrument(s) and equipment(s) as indicated in the schedule of requirements.

- 4.3 Each quoted item and all accessories should cover the warranty / guarantee for **2 (two)** year from the date of commissioning(**Annexure-II**).
- 4.3 The Cover B of the technically qualifying bidders shall be only opened at the Office of the "The Registrar, Veer Surendra Sai University of Technology, Burla" on the date and time will be communicated to them after technical evaluation of Cover A by E-mail/Fax.
- 4.4 The cost of standard accessories shall be included in basic price and optional accessories shall have to be quoted separately.
- 4.5 The bidders are required to submit the list of the dealers/ Distributors of the spare parts nearest to Bhubaneswar, Odisha for its availability.

5 BIDCONDITIONS

- 5.1The quoted rate shall not vary with the quantum of order placed or destination point.
- 5.2 A copy of the original bid conditions and the schedules should be signed by the bidder at the bottom of each page with the office seal duly affixed and returned along with the bid. Bid schedule should be duly filled in with an **index** and **page number** for the documents, enclosures & EMD etc. **Paging** must be done for all the documents submitted.
- 5.3Bids should be type written or computerized and every correction/ over writing in the bid should invariably be attested with signature of the bidder with date before submission of the bids to the authorities concerned. No revision of price upward or downward will be allowed once the bid is opened. However, the purchaser shall have the right for considering the exchange rate of foreign currencies on verification of documents.

5.4Language of Bid

The Bid prepared by the bidders and all correspondence and document relating to the bid exchanged by the Bidders and the *Purchaser*, shall be written in the English language. Supporting document and printed literature furnished by the Bidders may be written in another language provided they are accompanied by an accurate translation of the relevant passages in the English language in which case, for purposes of interpretation of the Bid, the English translation shall govern.

5.5 Bid Price

- The contract shall be for the full quantity as described above. Corrections, if any, shall be made by crossing out, initialing, dating and re-writing.
- All duties, taxes, and other levies payable on the raw materials and components, job contract shall be included in the total price.
- VAT in connection with the sale shall be shown separately.
- The rates quoted by the bidders shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- The price shall be quoted in Indian Rupees only.

5.6VAT/ST clearance

Copies of valid VAT clearance Certificates shall be furnished by the Bidders and the originals of the above certificates shall be produced to the purchaser before placement of notification of award if asked for by the Purchaser.

5.7 EMD

All bidders are required to submit EMD not less than 2% of the quoted amount in shape of Demand draft drawn in favour of "The Registrar, Veer Surendra Sai University of Technology, Burla" payable at State Bank of India, Burla only. The EMD shall be in Indian Rupees.

NOTE: Non-submission of EMD or submission of less EMD than the desired one shall result in rejection of Bid. The EMD deposited against other Bids cannot be adjusted or considered for this Bid. No interest is payable on EMD.

5.8SUBMISSION OFBIDS

Sealing and Marking of Bids

Bid should be submitted in two Bid system containing two parts as detailed below.

Sealed Cover-A: Technical Bid.

Sealed Cover-B: Price Bid (Hardcopy & sealed soft copy in CD)

Both the sealed envelopes should then be put in one outer cover and each cover should have the following indication:

i) Reference No of Bid	-
ii) Bid regarding	
iii) Due date & time for submission of the Bid	
iv) Due date & time for opening of the Bid	
v) Name of the Firm	

NOTE:

A. Bids submitted without following two Bid system procedures as mentioned above will be

Summarily rejected.

- B. Please Note that prices should not be indicated in the Technical Bid. The Prequalification document including EMD as required in the Bid document should invariable be accompanied with the Technical Bid (Cover A).
 - The outer envelope shall indicate the name and address of the bidders to enable the bid to be returned unopened in case it is declared olateo. If the cover containing the outer envelope is not sealed and marked as required, *Purchaser* will assume no responsibility for the bidos misplacement or premature opening.
 - The above procedure shall be adopted both for the Technical bid and price bid separately. Telex, cable, email or facsimile bids will be rejected.
- C. The bids must be sent by registered post/speed post only to the following address:

THE REGISTRAR,

VEER SURENDRA SAI UNIVERSITY OF TECHNLOGY, ODISHA,

At- Burla, Po-Burla Engineering College, Dist-Sambalpur-768018

5.9Deadline for Submission of Bids

Bids must be received by the *Purchaser* at the address specified not later than the time and date specified in the Invitation of Bids. In the event of the specified date for the submission of bids being declared a holiday for the *Purchaser*, the bids will be received up to the appointed time on the next working day.

The Purchaser may, at its discretion, extend this deadline for submission of bids by amending the bid

document, in which case all previous rights and obligations of the purchasers and bidders will remain same till the extended date.

5.10 Modification and Withdrawal of Bids

No Modification and Withdrawal of Bids is allowed between the interval of time of submission and the last date and time of the bids.

No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidders on the bid form.

5.11BID OPENING

- The *Purchaser* will open all bids, in the presence of bidder@s representatives who choose to attend at 11.00 AM on dated 16.05.2017 at the Office of the "The Registrar, Veer Surendra Sai University of Technology, Burla".
- The bidder¢s representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of bid opening being declared a holiday for the *Purchaser*, the bids shall be opened at the appointed time and location on the next working day.
- The bidder¢s names, and the presence or absence of the requisite EMD and such other details as the Purchaser, at its discretion, may consider appropriate will be announced at the opening. No bid shall be rejected at bid opening, except for late bids, which shall be returned unopened to the bidders.

5.12Acceptance of the Bid

- Bidders submitting bids would be considered who have considered and accepted all terms and conditions. No enquiries, verbal or written, shall be entertained in respect of acceptance or rejection of the bid.
- Genuine equipment and instrument etc. should be supplied. Bidders should indicate the source of supply i.e. name and address of the manufacturers from whom the items are to be sourced.
- Supply of equipment means \(\) Installation, Commissioning and Demonstration as well as Training at site. No separate charges will be paid on this account.

5.13Rejection of the Bid

The Bid document shall be out-rightly rejected under following stipulation and no correspondence will be entertained whatsoever.

- If the Bidder has not furnished the required **Tender paper cost** and **EMD** or **EMD exemption certificate** from competent authority.
- If the Bidder has not submitted the Price as per the prescribed format Annexure-I
- Manufacturing Authorization Annexure-III and in case of Authorized Distributor / Dealer/Suppliers have to submit Manufacture authorization along with copy of above documents of Manufacture Industry.
- Photo copy of the up-to-date valid manufacturing license/ import license (if it is imported)/dealership certificate/Distributor certificate of the product along with Tax Registration Certificate of Manufacturer issued from competent authority.
- If the bidders, whether manufacturer or authorized distributor/ dealer have not supplied the required quantity
 for qualification as per the eligibility criteria and not submitted the performance statement at Annexure-IV
 with supporting documents.
- If the quoted product of the bidders not confirms to technical specification with complete accessories for functional Equipment/Machinery and standard of workmanship required by the Purchaser.
- If the bidder has not furnished technical details of the equipment and machinery with one make & model as per Annexure-V.
- If bidder will quote items of more than one make/model.

- If the bidder has not furnished detailed mandatory drawings, **catalogue**/, Foundation drawings & schedule of supply of items, if required.
- If the bidders have not agreed to give **bid validity**.
- If Bidder is not willing to provide operational Training for equipment to Officials of the department

5.14Purchaser's Right to Accept any Bid and to Reject any Bid

The Purchaser reserves the right to accept or reject any bid and to annul the bidding process and reject all the bids without assigning any reason thereof at any time prior to award of Contract, without thereby incurring any liability to the affected Bidders or Bidders on the grounds of such action of the purchaser. In case no bidder qualifies as per qualifying criteria and standards, purchaser may at his discretion relax qualification criteria for award of contract.

5.15Evaluation and Comparison of Bids

The comparison shall be for destination price basis including the price of all costs wherever applicable as well as duties and taxes (**but excluding VAT**) paid or payable on instruments & equipment incorporated or to be incorporated in the items including the warrantee/guarantee period from the date of installation.

- The Purchaser® evaluation of a bid will take into account, in addition to the bid price and the price of incidental services.
- The purpose of bid evaluation is to determine substantially responsive bid with the lowest evaluated cost, but not necessarily the lowest submitted price, which should be recommended for award.
- Evaluation of bids should be made strictly in terms of the provisions in the bid document to ensure compliance with the commercial and technical aspects.
- The past performance of the suppliers will be taken into account while evaluating the bids.
- Cost of the inland transportation, insurance and other costs within the Purchaser's Country incidental to delivery of the goods to their final destination;
- Delivery schedule offered in the bid;
- Deviations in payment schedule from that specified in the General Terms & Conditions of Contract;
- The availability in the Purchaser's country of spare parts and after-sales services for the goods offered in the bid;
- The projected operating and maintenance costs during the life of the equipment/goods.
- The performance and productivity of the equipment/ goods offered;
- The quality and adaptability of the equipment/ goods offered.
- Any other point as deemed proper to be incorporated by the evaluation committee.
- Alternative options of offer shall not be allowed.
- Each Bidder shall submit only one quotation with one make &model.
- The quotation would be evaluated separately for each item
- Sales Tax in connection with sale of goods shall not be taken into account in evaluation.
- Negotiation shall be made with the lowest evaluated bidder.
- Lowest evaluated price shall be taken in to consideration, but not the lowest quoted price.

6. Supply Conditions

6.1 Delivery of Goods

The delivery of goods shall be made by the supplier to the Consignee in accordance to the order placed as

shall be detailed in the Schedule of requirements & technical specifications.

6.2 Instruments, Equipment Demonstration cum Inspection

Purchaser reserves the right to ask for demonstration cum inspection of the instruments & equipment where ever applicable.

6.3 Inspection/Test/Training

- The supplier shall get each equipment inspected in manufacturer¢s works and submit a test certificate (New & Unused) and also guarantee/warranty certificate that the equipment confirms to laid down specifications.
- The supplier shall invite the purchaser for pre-dispatch inspection. The Purchaser or his representative shall have the right to inspect/ examine/ test the goods in conformity with the contract awarded/supply order during the production or before dispatch from the manufacturerøs premises. Such inspection and clearance will not prejudice the right of the consignee to inspect and test the equipment on receipt at destination.
- The inspection/examination/ test may be conducted in the premises of the Supplier or at the goods final destination or at the premises of the consignee, as will be decided by the Purchaser.
- The purchaser's right to inspect/ examine/test & where necessary to reject the instruments & equipment after the arrival of the goods at the final destination, shall in no way be limited or waived by the reason of the goods having been inspected and tested by the manufacturer previously. In case of rejection of the goods at the final destination after inspection and test as stipulated above and in case any inspected/ tested goods fail to confirm to the specification/ working condition, the purchaser may reject them and the supplier shall replace/ repair the same free of cost.

6.4 Warrantee Period(comprehensive)

The Bidders must quote for a minimum period of **2 (Two) years** of comprehensive **warranty** from the date of completion of the satisfactory commissioning as per (**Annexure-II**). This also includes all accessories related to instruments & equipment quoted for.

6.5PaymentTerms

No advance payment will be made by the Purchaser to the supplier for performance of the contract. Payment shall be made after satisfactory supply, installation, demonstration, Commissioning & training of goods within due date of delivery.100% payment shall be made soon after 30 days of successful running of the supplied equipments from the date of installation.

6.6Transportation

The Supplier shall be required to meet all transport and storage expenses until commissioning of the instrument(s) / equipment covered in the contract.

6.7Taxes and Duties

- The Supplier shall be entirely responsible for payment of all Taxes, Duties etc. incurred until delivery of the contract goods to the Consignee subject to recovery afterwards in the bill as claimed in the Bid offer.
- VAT as applicable is payable, to the suppliers of the State of Odisha if claimed in the Bid offer.
- VAT/CST will be paid to the Suppliers of the outside State other than Odisha, if claimed in the Bid offer. Any revision of VAT/CST shall automatically be taken into account.

6.8IncidentalServices

The Supplier shall be required to provide any or all of the following services: (The cost should be included in the quoted Price)

• Furnishing of detailed literature/pamphlets/ circuit diagram/ operation &maintenance manual / drawings (as

applicable) for each appropriate unit of supplied goods.

- Furnishing of tools required for assembly and / or maintenance of the supplied goods.
- Performance or supervision of on-site assembly and the supplied goods.
- Performance or supervision or maintenance and/ or repair of the supplied goods, for a period of time agreed
 by the parties, provided that this service shall not relieve the supplier of any warranty/ guarantee obligations
 under the contract.
- A maintenance contract for the goods supplied, if required by the user beyond the warranty period shall be
 on mutually agreed upon terms between the user and supplier. The cost of such maintenance contract shall
 not be included in the Bid cost.

6.9Period of Validity of Bids

- The bid rates should be kept open/valid for a period of 180 days from the date the Bids are opened.
- A bid valid for a shorter period i.e less than 180 days shall be rejected, as nonresponsive.
- In absence of any indication of the date of validity in the bid, it will be presumed that the offer will remain valid for the minimum period i.e. 180 days as prescribed above.
- In exceptional circumstances the purchaser may solicit the bidders consent for extension of the period of validity. If agreed upon, the bid security so deposited shall also be suitably extended.

6.10CommissioningPeriod

Maximum commissioning period is 30 days from the date of supply OR 120 days from the date of issue of Purchase Order failing which the purchaser will have the right to impose penalty for the delay period @ 0.5% per week of the contract value of item/items excluding taxes from the bill amount subject to maximum of 10%. However, Registrar has right to extend the delivery period/commissioning period in special cases.

6.11Penalty against Non Supply

In case of non-supply of Stores within the due date i.e. within the date of delivery the EMD deposited by the bidder shall be forfeited.

6.12Rejecteditems

No payment shall be made for rejected supplied items. Rejected items must be removed by the bidders within two weeks of the date of rejection at their own cost and replace immediately. In case these are not removed these will be auctioned by the purchaser (at the risk and responsibility of the suppliers) without any further notice.

6.13Annual Maintenance Contract

The Cost of Annual maintenance contract for next 3 years after warranty period shall be submitted as per the **Annexure at I(b).** The after sales service during and after the warranty/ guarantee period should be available from companys own engineers.

6.14Jurisdiction of the Court

The Purchaser and the Supplier shall agree that the competent Court at Sambalpur shall have the jurisdiction to try and decide anything between the parties and they may approach the Competent Court at Sambalpur if required at any time.

Sd/-

REGISTRAR

SECTION – III: FORMS AND ANNEXURES

ANNEXURE-I (a)

PRICE SCHEDULE (ITEM WISE)

Item SI.No. &	Item description	Quanti	Price for each unit						(TUP) Total unit price	Total=	
Name of Lab	Name with make ty/Unit	Base price(a)	ED/CD, if any(b)	P &F, if any (c)	Freight charge,if any(d)	CST/Ent ry Tax,if any(e)	Unit price(a+b +c+d+e)	VAT(f)	=(a+b +c+d+ e+f)	(QtyxTUP)	

ANNEXURE-I (b)

PRICE SCHEDULE FOR ANNUAL MAINTANCE CONTRACT AFTER COMPLETION OF WARRANTY PERIOD.

Sl.No	Brief description of Goods Total annual	Quantity in nos.				Annual Maintenance Contract cost 3 years i.e. 3x (4a+4b+4c)
1	2	3	4		5	
			1st yr.	2nd yr.	3rd yr.	
			(a)	(b)	(c)	

Note: -

Place: Date:

- 1. In case of discrepancy between unit price and total prices, THE UNIT PRICE shall prevail.
- 2. The cost of Annual Maintenance Contract (AMC) which includes preventive maintenance including testing & calibration as per technical/ service/ operational manual, labour and spares, after satisfactory completion of warranty period may be quoted for next 3 years on yearly basis for complete equipment and turnkey (if any).
- 3. The cost of AMC may be quoted along with taxes applicable on the date of bid opening. The taxes to be paid extra, to be specifically stated. In absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
- 4. Cost of AMC will not be added for Ranking/Evaluation purpose. However, the cost of AMC for lowest evaluated bidder is subject to negotiation.
- 5. The payment of AMC will be made as per payment terms of the bid document.
- 6. The uptime warranty and down time penalty shall be as per the bid document.
- 7. All software update should be provided free of cost during AMC period.
- 8. The stipulations in Technical Specification will supersede above provisions.
- O. The supplier shall keep sufficient stock of spares require during Annual Comprehensive Maintenance Cont

3. The supplier shall keep sufficient stock of spares require during Affiliaa Comprehensive Manitenance Contrac
period. In case the spares are required to be imported, it would be the responsibility of the supplier to import and ge
them custom cleared and pay all necessary duties.

Signature of Bidder **Business Address** Seal of the Bidder

ANNEXURE - II

WARRANTY MAINTENANCE CONTRACT AGREEMENT.

THIS AGREEMENT made theday of .	, 20 between the "Ine Registrar, Veer
Surendra Sai University of Technology, Burla	" (hereinafter "the Purchaser")of the one part and
M/s	(here in after called othe Supplier") of the other
part.	
Whereas the Purchaser invited bids for certain Goods	& ancillary services viz, supply and commissioning of

Name of the Equipment & machineries Qty

(To be filled in as per details of goods in the award of Contract)

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

- 1. Maintenance Services shall consist of Preventive and Corrective maintenance of equipment specified above & will include repair and replacement of parts free of cost.
- 2. Preventive maintenance, monthly once, which includes:

Check-up to ensure that device connection is proper, cabling is at proper condition etc.

Cleaning of the above instruments & equipment and checking the System Performance.

- 3. The Supplier is to furnish the tentative schedule of the preventive maintenance of Warranty Maintenance Contract (WMC) to be carried out.
- 4 The parts replaced must be new parts or equivalent in performance to new parts.
- 5. The Supplier will also provide the same maintenance service in case of the movement of equipment from the place of original installation to a different place or location, if the equipment is shifted by the Purchaser to another place or location at the cost and risk of the purchaser.
- 6. Any complaint informed through telephone must be acknowledged with a Complaint No. by the Supplier which will be noted by Consignee. All further contact with the Supplier on such complaint will be initiated through that Complaint No. Once rectification done, that No. will be cancelled by both parties. A register is to be maintained by the Supplier where complaints are to be noted along with Complaint No.
- 7. The maintenance shall normally be done at the earliest.
- 8. The Service Engineer of the Supplier will be allowed to handle the respective plant & machineries only in presence of the officer in charge at the Consignee site.
- 9. The Supplier should ensure that maintenance job is not hampered/delayed due to paucity of spares/inadequate manpower etc.
- 10. The Supplier should submit the services call report, to the Consignee for each and every service call without fail.

- 11. The Supplier evaluation data format for the WMC of Consignee systems may be filled up for necessary action.
- 12. All formats after filled up should be signed at the end of each page by the Supplier.
- 13. After completion of the work/repair/maintenance, the Purchaser shall issue a certificate of completion to the supplier to that effect.

Signature	Signature
For the Purchaser	For the Supplier
Name:	Name:
Designation:	Designation:
Address:	Address:
Telephone No:	Telephone No:

ANNEXURE-III

MANUFACTURES' AUTHORISATION FORM

No/Date/
To The Registrar, VSSUT Odisha Burla, Sambalpur.
Dear Sir, BidNo
Wewho are established and reputable manufacturers of
Having factories at(Address of Factory)do thereby authorize M/s (Name and address of Agent) to submit a bid and sign the contract with you against the above bid.
* No company or firm or individual other than M/s are authorized to bid and conclude the contract in regard to this business against this specific invitation forbid.
We hereby extend our full guaranty and warranty as per general conditions of contract for the good and services offered by the above firm against this bid.
Yours faithfully, (Signature for and on behalf of Manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a person, competent and having the power of attorney to bind the manufacturer. It should be included original by the Bidders in its bid.

This para should be deleted for simple items where manufacturers sell the product through different stockiest.

ANNEXURE-IV

DETAILS OF THE BIDDERS

Bid Reference No.

Name and address of the Bidder:

- 1 Name of the bidder
 - a) Full postal address
 - b) Full address of the premises
 - c) Telegraphic address
 - d) Telephone number
 - e) Fax number
 - f) Email:
 - g) PAN No
 - h) TIN No
- 2 Total annual turn-over (value in Rupees)
- 3 Quality control arrangement details
- 4 Test certificate held
 - a) Type test
 - b) BIS/ISO certification
 - c) Any other
- 5 Details of staff
 - a) Technical
 - b) Skilled
 - c) Unskilled
- 6 Branch Office/ Contact Person/ Liaisoning Office in Odisha.
 - a) Address
 - b) Telephone No.
 - c) e-mail,
 - d) Fax

Signature and seal of the Bidder

ANNEXURE-V

Technical details of the Instruments & Equipment to be supplied by the bidder

Bid Sl No. of the item	Tender specification	Bidders Specification with make and model no (Enclose manufactures catalogue / brochure for each item)	Deviation if any With university specification

Signature and seal of the Bidder

SECTION-IV:

SCHEDULE OF REQUIREMENTS AND TECHNICAL SPECIFICATIONS

A. ANALOG ELECTRONICS LABORATORY I TRAINER BOARDS for the following: i. RC phase shift oscillator ii. BJT Biasing iii. JFET Biasing iv. Enhancement MOSFET v. Wein bridge oscillator vi. RC coupled amplifier using BJT vii. Square wave testing for BJT amplifier viii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: 990dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable	SI	Name & Specification of articles/materials	Quantity					
1 RC phase shift oscillator ii. BJT Biasing iii. JFET Biasing iii. JFET Biasing iii. JFET Biasing iv. Enhancement MOSFET v. Wein bridge oscillator vi. RC coupled amplifier using BJT viii. Square wave testing for BJT amplifier viii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: \$11, \$21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: \(1.0 \circ to 55 \circ C Safety and Shock: EN 6101-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable	No.	A ANALOG ELECTRONICO LABORATORY						
i. RC phase shift oscillator ii. BJT Biasing iii. JFET Biasing iii. JFET Biasing iv. Enhancement MOSFET v. Wein bridge oscillator vi. RC coupled amplifier using BJT vii. Square wave testing for BJT amplifier viiii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER 1 Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance - real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: -90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
iii. BJT Biasing iiii. JFET Biasing iv. Enhancement MOSFET v. Wein bridge oscillator vi. RC coupled amplifier using BJT viii. Square wave testing for BJT amplifier viiii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER 1 Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance - real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: 90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable	1	I RAINER BOARDS for the following:	9 (1 each)					
iii. BJT Biasing iiii. JFET Biasing iv. Enhancement MOSFET v. Wein bridge oscillator vi. RC coupled amplifier using BJT viii. Square wave testing for BJT amplifier viiii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER 1 Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance - real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: 90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable		i. RC phase shift oscillator						
iii. JFET Biasing iv. Enhancement MOSFET v. Wein bridge oscillator vi. RC coupled amplifier using BJT vii. Square wave testing for BJT amplifier viii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable		· · · · · · · · · · · · · · · · · · ·						
iv. Enhancement MOSFET v. Wein bridge oscillator vi. RC coupled amplifier using BJT vii. Square wave testing for BJT amplifier viii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER 1 Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
v. Wein bridge oscillator vi. RC coupled amplifier using BJT vii. Square wave testing for BJT amplifier viii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER 1 Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
vi. RC coupled amplifier using BJT vii. Square wave testing for BJT amplifier viii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER 1 Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance - real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
vii. Square wave testing for BJT amplifier viii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance - real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
viii. Opamp and its application as integrator, differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance - real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
differentiator and comparator ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
ix. Class A, class B and class AB BJT power amplifier The above trainer boards should be enclosed in a box having inbuilt power supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: . 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
supply, Circuit diagrams should be provided on the board, points to be provided for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
for observing voltage and waveforms in the circuit. Instruction manual, patch chord with 4mm jack to be supplied. B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable		The above trainer boards should be enclosed in a box having inbuilt power						
B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance - real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable		supply, Circuit diagrams should be provided on the board, points to be provided						
B. MICROWAVE LABORATORY 2 Handheld VECTOR NETWORK ANALYSER Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable		for observing voltage and waveforms in the circuit. Instruction manual, patch						
Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable		chord with 4mm jack to be supplied.						
Frequency range: 600KHz to 6GHz No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable	2	Handheld VECTOR NETWORK ANALYSER	1					
No of ports: 2 port type N (Female) Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable		Fraguency range: 600KHz to 60Hz						
Trace and domain: Four, frequency and distance domain Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Measurement parameters: S11, S21 Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Graph types: Log magnitude, SWR, phase - real and imaginary, group delay, smith chart, linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
linear, polar, Impedance . real and imaginary IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
IF bandwidth: 10 Hz to 100KHz Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Dynamic Range: >90dB transmission dynamic range Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Display: 8+LCD Touch Screen Display Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Power: Mains and/or battery operated. More than 3 hrs of battery operations Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Operating Temperature: '. 10 °C to 55 °C Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Safety and Shock: EN 61010-1 Class 1, MIL-PRF-28800F Class 2 Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Calibration Components: Precision Open/Short/Load N(m) cal kit along with test port extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
extension cable N(m) to N(F) should be provided Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Standard Accessories: The Instrument to be supplied with User Manual, AC/DC adapter, Carrying Case, USB Cable								
Carrying Case, USB Cable								
Topical for a strong motor. The metrament endure be appropried to define to power sellen.		Option for Power Meter: The instrument should be upgradable to connect to power sensor.						

3 RF power meter Measurement: True RMS Frequency range: 10MHz to 18GHz Dynamic Range(CW): . 40 dBm to +20 dBm SWR: <1.25 over entire range Measurement Resolution: 0.01 dB max Averaging: Auto, Manual 1 to 20,000 Connector: N (Male) Trigger: Internal or external Scope Mode: 0.5ms to 300ms with 1 to 1000 data points Time Slot Mode: 0.5ms to 300ms up to 128 slots maximum Power handling: +33dbm Operating temperature range: 0 °C to 55 °C Safety: EN 61010-1 Connectivity: The power meter should be connected to PC for measurement through USB or similar cable, Suitable Software to be provided Accessories: User Manual, Cables to be provided 4 Antenna trainer system For teaching of various antennas in the frequency band mentioned. The trainer should be motorized and can be used in standalone or interfaced with PC via USB. System should have base for mounting transmitter and receiver antennas. The different experiments to be performed are: Variation of field strength with distance, plotting radiation pattern of directional/omni directional antenna, polarization of antenna, study of resonant/non resonant antenna with VSWR and impedance, current distribution along antenna elements, verifying reciprocity theorems, study of gain, polar plot, beam width and FBR. Transmitter: Frequency 50. 1000MHz, crystal controlled Intervals: 50MHz RF level: 90dBµV typical Measurement: RF level in dBµV, dBm, pW with 0.1dB resolution Dynamic range: 70dB log Auto mode: data logging for polar/Cartesian plot USB Interface: connectivity to PC using polar pattern plot software Rotation: 0 to 360 degrees with 1-degree resolution Angular steps: 1, 5, 10, 45 degrees Display: LCD Functions: Menu, enter, escape, up and down Memory: 1000 memories for storing angular position for quick recall Auto mode: Automatic rotation with receiver interface Clockwise/anticlockwise rotation, fast/slow speed Receiver frequency: 86MHz . 860MHz PLL synthesized Step size: 0.05, 0.1, 0.25, 0.5, 1, 10, 100 MHz Display: LCD, Functions: Menu, enter, escape, up and down Memory: 1000 memories for storing angular position for quick recall Output impedance: 50ohms The different antennas and accessories to be included are:

Different Microstrip patch antennas, Directional coupler SMA(M), log periodic, dipole, folded dipole, monopole, helix, broadside and end fire array, yagi uda, square loop, phase array, sleeve etc.

Transmitter/receiver tripod, USB connecting lead, antenna plotting software, necessary cables and connectors and experiment manual.