CHANDIGARH COLLEGE OF ENGINEERING & TECHNOLOGY,(DEGREE WING),
SECTOR 26, CHANDIGARH
(Phone No. 0172-2750943)

SHORT TERM E-TENDER NOTICE

College website: - www.ccet.ac.in

Chandigarh College of Engineering & Technology (Degree Wing), Sector-26, Chandigarh invites short term e-tenders through e-tendering for purchase of Machinery/Equipments/Items for following Departments:-

Name of Department	**Earnest Money** (₹)	**Start Date and Time of uploading of short term e-tender**	**End Date and Time of uploading of short term e-tender**	**Date and Time of opening of Online Bid (Technical Bid)**
Mechanical Engineering	38000/-	27-12-2013 at 10.00 a.m.	13-01-2014 at 3.00 p.m.	16-01-2014 at 11.00 a.m.
Civil Engineering	19000/-	-do-	-do-	-do-
Electronic & Comm. Engg.	37000/-	-do-	-do-	-do-

Detailed Terms and Conditions are available in short term e-tender document.

The bid document can be downloaded from the website of Chandigarh Administration http:/www.etenders.chd.nic.in however for general information, guidance and reference, the tenderer can approach to office of Principal, Chd. College of Engg. & Tech. (Degree Wing), Sector-26, Chandigarh (Phone No. 0172-2750943)

Principal

INSTRUCTIONS TO BIDDERS REGARDING E-TENDERING PROCESS

a. Tenders without Digital Signatures will not be accepted by the electronic tendering system. No tender will be accepted in physical form and in case it has been submitted in physical it shall be rejected.

b. Before submission of on line bids, bidders must ensure that scanned copies of all the necessary documents have been uploaded with the bid.

c. Principal, Chd. College of Engg. & Tech. (Degree Wing), Chandigarh will not be responsible for any delay in online submission of bids due to any reason whatsoever.

d. Bidders should get ready with the scanned copies of EMD as specified in the tender documents. The original instruments in respect of EMD in the shape of FDR or Deposit at Call or Term Deposit Receipt or Demand Draft in favour of the Principal, Chd. College of Engg. & Tech. (Degree Wing), Sector-26, Chandigarh should reach on or before **13-01-2014 at 3.00 PM.**

e. The details of EMD specified in the tender document should be same as submitted online (scanned copies). Otherwise tender will be rejected summarily.

TERMS AND CONDITIONS OF THE SHORT TERM E-TENDER

CCET STANDS FOR CHD. COLLEGE OF ENGINEERING & TECHNOLOGY, (DEGREE WING), CHANDIGARH.

1. The last date and time for receipt of tenders is **13-01-2014 at 3.00 p.m.** through e-tendering only.
2. Each tender must be accompanied with Earnest Money Deposit of Rs. 38000/- for Mechanical Deptt, Rs. 19000/- for Civil Deptt and Rs. 37000/- for ECE Deptt in the shape of FDR or Deposit at Call or Term Deposit Receipt or Demand Draft in favour of the Principal, Chandigarh College of Engineering & Technology (Degree Wing), Chandigarh, valid for three months payable at Chandigarh on any Scheduled Bank.
3. The sealed envelope of EMD should bearing the Advertisement No. and should be clearly superscribed as "EMD for Purchase of Machinery /Equipment/Items for Mechanical Engineering Deptt., Civil Engineering Deptt. and Electronic & Communication Engineering Department due on **13-01-2014 at 3.00 p.m.** should be separately submitted in the office of Principal, Chandigarh College of Engineering & Technology (Degree Wing), Sector-26, Chandigarh on or before **13-01-2014 upto 3.00 p.m.**
4. Any attempt direct or indirect, to cast influence, negotiation on the part of the tenderer with the officials/authority to whom he will submit the tender or the tender accepting official/authority before the finalisation of tenders will render the tenderer liable for exclusion from consideration.
5. Tender(s) received without earnest money shall be rejected straightway.
6. Earnest Money deposited with the Chd. College of Engg. & Tech., (Degree Wing), Chandigarh in connection with any other tender will not be considered against this tender.
7. The Public Sector Undertaking of the Central / State Govt. are exempted from furnishing Earnest Money Deposit.
8. This tender is not transferable.
9. The tender i.e. Pre-qualifying-cum-Technical Bid shall be opened at **11.00 a.m.** on **16-01-2014** at Chandigarh College of Engineering & Technology (Degree Wing), Chandigarh.
10. Conditional offer shall be rejected.
11. The requirements of the Institute in terms of category of machinery/equipment/items, detailed specifications and quantity are given in **SCHEDULE OF TECHNCIAL SPECIFICATION / REQUIREMENT (AS PER ANNEXURE-I)**. Principal, CCET reserves the right to change the quantity for any/all items without assigning any reason.
12. The tenders not accompanied by Earnest Money or incomplete in any respect will be rejected outrightly.

13. No advance payment will be made. Payment will be made after receipt of machinery/equipment/items, its inspection, installation and testing to the satisfaction of the Technical and Purchase Committees.

14. The quoted prices must be mentioned showing Excise Duty and VAT /sales tax separately.

15. The Principal, CCET reserves all rights to accept or reject any tender without assigning any reason.

16. Rates should be quoted F.O.R. Chd. College of Engg. & Tech., Sector-26, (Degree Wing) Chandigarh including packaging, forwarding, postage and freight etc.

17. The Principal, CCET reserves all rights to reject the goods if the same are not found in accordance with the required description / specifications.

18. In case of violation of any term and condition as mentioned, Earnest Money Deposit of the tenderer shall be forfeited in full or part at the entire discretion of the Principal, Chd. College of Engg. & Tech., Chandigarh.

19. Training for the operation of equipments, if any, shall be provided by the firm free of cost to the faculty / other staff of the college.

20. The defective machinery/equipment/items from the Store of Chd. College of Engg. & Tech., Chandigarh will be lifted at the entire cost & risk of the firm. Chd. College of Engg. & Tech., Chandigarh will not bear any expenses on this account and the machinery/equipment/items lying in the CCET premises will be at tenderers risk and cost.

21. The machinery/equipments/items will be maintained free of charges during the warranty period.

22. **PERFORMANCE SECURITY:-** Performance security @10% of the value of supply order covering the warranty period shall be furnished by the firm in the shape of Bank Guarantee duly pledged in favour of Principal, Chd. College of Engg. & Tech., Chandigarh before / along with supply of machinery/equipments/items. **The performance security should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations.**

23. The CCET would return the Earnest Money Deposit to the successful tendering firm on the submission of the Bank Guarantee. EMD of unsuccessful tenderer will also be returned.

24. Rates quoted in Indian Currency only shall be accepted irrespective of foreign make of machinery/equipment/items which should include all kinds of charges, taxes, duties etc. Financial bids showing the rates in other currency shall not be considered and deemed to be rejected automatically.

25. **PERIOD FOR WHICH THE OFFER WILL REMAIN OPEN:-**

The tendering firms should keep their offers valid for acceptance upto **31.12.2014.** If the firms are unable to keep their offers open for the above said period, they should specifically state the period for which their offers would remain open but such a provision may result in the rejection of their offers.

26. Any conditional tender or any deviation from the terms and conditions of the tender document shall render the tender liable to rejection.

27. The machinery/equipments/items will be installed free of charge by the firm / agent at the designated premises. The cost of material required for installation shall be borne by firm. Material for experimental set up such as Table, Stand etc. should be provided by the firm at its own cost. CCET will not provide any material required for installation. Foundations of equipments wherever necessary shall be provided/constructed by the supplier free of cost.

28. DELIVERY PERIOD:- The Delivery period of the machinery/equipment/items shall be strictly 6-8 weeks from the date of supply order. The delivery period will be extended at the sole discretion of the Principal, CCET in special circumstances on written request from the firm. Penalty @ 1% per week of the cost / price of machinery/equipment/items for actual period of delay after the due date of supply of machinery/equipments/items will be charged.

29. Installation and demonstration will be done by the supplier to the satisfaction of Head of Department concerned.

30. Warranty period, where applicable, should be clearly specified but not less than 1-year in any case.

31. After the receipt of machinery / equipment, any fault or deficiency in the machinery/equipments/items noticed should be rectified by the supplier within two weeks after intimation free of cost.

32. Instructional materials and **e-manuals** will be uploaded by the supplier free of cost.

33. The technical broucher for the equipments shall be uploaded along with Pre-qualifying – cum – Technical Bid.

34. INSPECTION OF MACHINERY/EQUIPMENT/ITEMS

The machinery/equipments/items will be inspected only at CCET premises. However, the inspection of machinery/equipments/items at factory site or any other place, if any, shall be carried out at the risk and cost of the Tenderer / Bider. The CCET will not bear any expenses on this account.

35. In the cases of failure or default in the performance or responsibilities or breach of terms and conditions of DNIT or MOU or any agreement of contract between the company / firm / agency / person or any legal entity and CCET, as the case may be, the said company / firm / agency / person or any legal entity shall be black listed in the light of notification issued by Chandigarh Administration vide their letter No. 1927-F&PO(3)-2009/1170 dated 27-02-2009 or any other instructions issued from time to time.

36. **The tenderer has to submit latest affidavit (as per Annexure II) regarding non black listing of individual / firm/ company, as the case may be.**

37. **JURISDICTION**

The courts of Chandigarh alone will have the jurisdiction to try any matter, dispute or reference between the parties arising out of this purchase. It is specifically agreed that no Court outside and other than Chandigarh Court shall have jurisdiction in the matter.

38. **Force majure:**- Any failure or omission or commission to carry out provision of this tender by tenderer shall not give rise to any claim by one party against the other if such failure or omission or commission arise from an Act of God; which shall include all Acts of natural calamities such as fire, flood, earthquake, hurricane, or any pestilence or from civil strikes, compliance with any status and / or regulation of the Government, look outs and strikes, riots, curfew, embargoes or from any political or other reason beyond the parties control including war (whether declared or not), civil war or stage of insurrection, provided that notice of the occurrence of any event by either party to the other shall be given within two week from the date of occurrence of such any event which could be attributed to force majure conditions.

Annexure-I

Schedule of Technical Specification / Requirement

(SPECIFICATIONS AND ALLIED TECHNICAL DETAILS OF MACHINERY/ EQUIPMENTS/ITEMS AND SCHEDULE OF REQUIREMENT)

1.	Mechanical Engineering Deptt.	Schedule I
2.	Civil Engineering Deptt.	Schedule II
3.	Electronics and Communication Engg. Deptt.	Schedule III

ANNEXURE-II

I/We (Name)_____

Contractor / partner / sole proprietor (strike out word which is not applicable) or (Firm)/Company _____ do hereby solemnly affirm and declare that the individual firm / companies are not black-listed by the Union or State Government or any autonomous body.

DEPONENT

Address _____

_____

I/We do hereby solemnly affirm and declare that the above declaration is true and correct to the best of my knowledge and beliefs. No part of it is false and nothing has been concealed.

DEPONENT

Dated:

CHECK LIST DULY FILLED IN TO BE ATTACHED WITH PRE-QUALIFYING-CUM-TECHNICAL BID FOR THE EQUIPMENT OF THE DEPARTMENT OF <u>CIVIL ENGINEERING/MECHANICAL ENGINEERING/ELECTRONICS AND COMMUNICATION ENGG. DEPTTS.</u>

1.	Whether EMD in the shape of FDR or Deposit at Call or Term Deposit Receipt or Demand Draft valid for three months, for the asked-for amount attached / uploaded?	Yes / No
2.	Whether tender document duly signed by authorized signatory attached / uploaded?	Yes/No
3.	Whether affidavit duly attested by Notary / Executive Magistrate regarding non-black listing of firm Attached / uploaded?	Yes/No
4.	Whether a list of institutions / organizations where your firm has supplied this item / equipment / instrument recently, is attached / uploaded.	Yes/No
5	If you are an authorized agent / dealer / distributor of the firm / company / manufacturer and whether authority letter as issued by them in your favour attached / uploaded?	Yes/No
6.	Whether Technical broucher of the equipments attached / uploaded?	Yes/No

Signature of authorized signatory
with seal of the firm

SCHEDULE-I

CHANDIGARH COLLEGE OF ENGG. & TECHNOLOGY, CHANDIGARH
SPECIFICATIONS AND ALLIED TECHNICAL DETAILS OF EQUIEPENTS
AND SCHEUDLE OF REQUUIRMENT FOR MECHANICAL ENGG. DEPTT.

SCHEME - 1 (Mechanics of Materials)

Sr. No.	Name of Equipment	Qty.	Specifications	Approximate Cost (in rupees)
1	Computer Control led Hydraulically operated Universal Testing Machine (UTM)	01	Max. Test Load = 1000KN Least Count = 100N Clearance for Tension test 50 to 850 mm Clearance for Compression test 0 to 850 mm Ram Stroke = 250-300 mm Piston speed = 0 to 80 mm/min Clearance between columns 600 to 800 mm Operating Voltage 400 to 440V Phase = 3 Display of testing parameters: value and real time curve (load, strode and elongation), available to display and switch from computer. Intel i3 processor 320 GB HDD,2GB RAM, DVD R/W drive Min.Windows XP uploaded Key board,optical mouse,6USB ports 17" TFT Screen Deskjet coloured Printer UPS 500V. Machine must be capable of performing the Following Tests: a) Tension b) Compression c) Bending d) Transverse e) Shear f) Hardness	10,00,000/-
2	Sample Polishing Machine	01	Double disc polisher Two independent polishing units mounted on a common frame.	1,50,000/-

			Provided with sink and swing type laboratory water tap. Aluminum Disc 8"Dia (Interchangeable) Variable speed from 50-1000 RPM Power Supply : 230 V / 50 Hz	
		TOTAL APPROXIMATE COST		11,50,000/-

SCHEME - 2 (ROBOTICS)

Sr. No.	Name of Equipment	Qty.	Specifications	Approximate Cost (in rupees)
1	Articulated Robot Manipulator (Minimum 6 degree of freedom) with Tech pendant, Controller & power supply	01	Mechanical Structure: • Vertically Articulated Degrees of freedom • 5 rotational axes + gripper Payload capacity: Approximate 2.0 Kg • Axis Range: o Axis 1 : Base rotation: Between 300^o to 330^o o Axis 2 : Shoulder rotation: Between 120^o to 150^o o Axis 3 : Elbow rotation: Between 100^o to 120^o o Axis 4 : Wrist pitch: Approximate ± 120^o o Axis 5 : Wrist Roll : 360^o • Reach o 600mm to 650 mm end of gripper • Speed o 700 to 725mm/sec • Gripper: Two & three figure with servo feedback • Repeatability: ± 0.2 mm • Controller with USB Connection • Type of Control: o Joint o Linear o Circular path control o Speed Control • Inputs o Minimum 8 digits inputs o Minimum 4 analog inputs • Outputs o Minimum 8 digitals outputs having 4 relays output o Minimum 2 analog outputs o Minimum two +12 VDC terminals, for connection of remote switches, sensors etc. • Programming: GVI based control software with graphical simulation of robot manipulator in various work environment and compatible with windows XP, window 7 & window 8.	7,50,000/-
		TOTAL APPROXIMATE COST		7,50,000/-

SCHEDULE-II
CHANDIGARH COLLEGE OF ENGG. & TECHNOLOGY, CHANDIGARH
SPECIFICATIONS AND ALLIED TECHNICAL DETAILS OF EQUIEPENTS
AND SCHEUDLE OF REQUUIRMENT FOR CIVIL ENGG. DEPTT.
SCHEME I
UPGRADATION OF ENVIRONMENTAL ENGINEERING LAB

S. no	Equipment	Quantity	Approx. Amount
1	**Dissolved Oxygen Meter** **Features & Specifications** It shall be a heavy-duty portable waterproof meter for DO (Dissolved Oxygen) and temperature measurements, designed to provide laboratory results and accuracy even under harsh industrial conditions. **Oxygen Range: 0.00 to 13.67 mg/L; % Oxygen Saturation** **Range: 0.0 to 50.0 oC, Accuracy: ± 1% f.s, ± 0.5 °C; Resolution: 0.01 mg/L, 0.1%, 0.1oC** **Features: ATC, Auto Altitude Compensation, Auto Salinity Compensation**	01	Rs. 52,650/-
2	**pH Meter** Heavy-duty portable waterproof meters for pH, ORP (Oxidation Reduction Potential) and temperature measurements, designed to provide laboratory results and accuracy even under harsh industrial conditions. Main features shall include: • 7 memorized buffers for pH calibration (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45) • Messages on the LCD to make the calibration easy and accurate • pH readings with manual or automatic temperature compensation • Calibration time-out alarm • Log-on-demand • HOLD feature to freeze stable reading on the LCD • GLP feature to view last calibration data for pH and relative mV • PC interface • Connection to an external serial printer with the following specification at least 16 characters/line, baud rate 9600 and RS232 input	01	Rs. 37,600/-
3	**CONDUCTIVITY-TDS-TEMP METER** Waterproof portable meters that read TDS and Conductivity in 5 ranges and temperature. The auto ranging feature of the EC and TDS ranges automatically sets the instrument to the scale with the	01	Rs. 38,000/-

	highest resolution. Measurements are compensated for temperature effect automatically (ATC) or manually (MTC). It shall also be possible to disable the temperature compensation feature to measure the actual conductivity. The temperature coefficient shall be user selectable. These instruments shall also features a measurement stability indicator, GLP capability, and a user selectable ID code to uniquely identify the instrument. Moreover, It shall include PC interface and printing function. Connect the meter to an external serial printer with the following: printer Range: 0.00 to 19.99 mho / 0.00 to 10.00 ppm, 0.0 to 199.9 µS / 0.0 to 100.0 ppm, 0 to 1999mho / 0 to 1000 ppm, 0.00 to 19.99 mS / 0.00 to 10.00 ppt, 0.0 to 199.9 mS / 0.0 to 100.0 ppt,-9.9 to 120.0 °C, The instrument shall be internally calibrated to display the corresponding TDS concentration. Accuracy: ± 1% f.s, ± 0.5 °C; Resolution: 0.01 / 0.1 / 1 µS/ppm ; 0.01 /0.1 mS/ppt, 0.1 °C,		
4	**<u>Turbidity Meter</u>** Specification: **Unit of measure: NTU,FNU,FAU,ASBC,EBC ** **Range: 0-4000** ** **Résolution : 0.01NTU (0.00-10.99), 0.1 NTU(11.00-109.9)** **1 NTU (110-4000)** ** **Accuracy: ±2%** ** Detection Limit: 0.05NTU ** **Range Selection: Automatic** ** **Light Source: Tungsten (EPA)** ** Averaging facility of 2,5,10 samples ** **Data logging: 4000Points** ** **Response Time: <5s**	01	Rs. 74,000/-
Total			Rs. 2,02,250/-

SCHEME II

UPGRADATION OF SURVEY LAB

Sr. No	Name of Equipment	Quantity	Specifications	Cost per unit (Rs.)
1	Digital Theodolite	1	Magnification - 30x or better Aperture - 45 mm (1.7 in) or better Focus Distance - 1.35 m to ∞ (4.43 ft) to ∞ Field of View - 1˚ 30’ or better Stadia Ratio / Constant. - 100 / 0 Optical Plummet Image - Erect Magnification- 3X or better Angle of view - 5˚or better Focusing range Reticle type Crosshair Angle Measurement System Minimum Reading - 1” or 5” Precision - 2” or better Units - Deg / mil / gon / V % Display - Dual, Large Character, Backlit LCD TILT Sensor Automatic Compensation - ±3’ Range or better User set - On/Off VIALS Tubular - 30”/2 mm or better Circular - 8’/2 mm or better ON / OFF Power Backlight / Illumination On / Off HOLD Angle Hold - R/L Clockwise/Counterclockwise Measurement 0 SET - Zero Reset of Horizontal Angle V% - Convert Vertical Degrees to Percent Dust/Water - IP-54 Operating Temperature - –20°C to +50°C Size - Instrument 164 x 154 x 340 mm Weight - Instrument 4.5 kg (9.9 lb) OR LESS	75,000/-
2	Chains(30m)	2	METRIC CHAIN - Made of 8 SWG Wire. With 10 arrows:- As per ISI Specification: Size 30 M.	8000/-
3	Telescopic alidades	2	TELESCOPIC ALIDADE 178 MM / 225 MM : Internal focusing with vertical circle graduated to read 30 minutes with vernier extendable base plate. The spirit level is mounted on the top of the telescope with circular bubble on straight edge. The telescope is fitted with pull out glass stadia diaphragm. The instrument is supplied in highly polished wooden	10,000/-

			box.	
4	Tapes	5	MEASURING FIBER GLASS TAPE :- 100 M	2000/-
5	Prismatic Compass	5	PRISMATIC COMPASS WITH TRIPOD STAND : Made of brass with aluminium ring, engine divided to read 30 minutes with fine agate centre, well magnetized needle, automatic lifter and prism reading, hinged coloured shades and reflector packed in fiber case with tripod stand having ball and socket head made of aluminium. AS PER IS SPECIFICATION NO. IS-1957-1961. Complete with aluminium stand.	10,000/-
6	ARC GIS ARC View 10.1 (Latest version)	1 set(25 user pack)	The Software should be user-friendly interface and being able to access all common vector and raster formats. It features a wide range of tools for working with geographic information (query, layout creation, geoprocessing, , etc. Like- • Create On-the-Fly Dynamic Joins between Different Databases • Join Dialog Box Supports Join Validation prior to Execution • Create and Use Many-to-One and One-to-Many Relationships • Create Statistics • Summarize Data • Calculate Field Values of All or Selected Rows • Interactively Change the Visibility of Fields • Simplify Field Names with Field Aliases • Display Numeric Fields Formatted as Currency, Direction, Percentage, etc. • Create Charts and Reports • Build Detailed Reports Using Esri® Report Wizard • Connect to and Use Remote Database Tables • Upload a Layer Package File to ArcGIS Online and Share It • Extract a Layer Package • Create a Map Package File • Upload a Map Package File to ArcGIS Online and Share It • Using ESRI online maps as basemaps The software shall be compatible with Windows, CORE FEATURES Provides common GIS tools like	50,000/-

			data loading, map navigation, query map information like alphanumeric information, distance measurement, thematic map generation, cartography, legend edition using common legend types, labelling, feature selection by many selection types, data tables with statistics, Layer management in Table of Content Frame, table relations, layout manager, geoprocessing tools, CAD, raster processing, etc. Interoperable: able to work with most known data formats:Geodatabase, ENVI files, ERDAS img, (Geo)TIFF, shapefile etc.	
7	Mirror Stereoscopes	2	Mirror stereoscope with 3 x or 4 x binoculars; Complete with all accessories required to view aerial photographs, a set of aerial photographs.	20,000/-

SCHEME III

UPGRADATION OF GEOTECH LAB

S.No.	PARTICULAR OF ITEMS	QUANTITY	COST(Rs.)
1.	**LABORATORY CALIFORNIA BEARING RATIO TEST APPARATUS ,MOTORISED.**	**1**	**1,00,000/-**
	Ref. Standards IS: 9669, IS: 2720 (Part XVI), BS 1377;		
	The equipment consist of the following replaceable parts :		
	Load Frame, 50 kN Capacity,		
	Mould Mild Steel -150 mm ID x 175 mm H.		
	Perforated Base Plate-Mild Steel for AIM 12001 Mould		
	Extension Collar –Mild Steel150 mm IDx50 mm high		
	Penetration Piston 50 mm face dia		
	Adjustable Bracket for Penetration dia gauge		
	Circular Metal Spacer Disc, with detachable handle, 148 mm dia x 47.7 mm high.		
	Annular Metal Weight 2.5 kg, 147 mm dia with 53 mm dia central hole.		
	Slotted Metal Weight 2.5kg, 147 mm dia, with 53 mm dia slot		
	Perforated Plate 148 mm dia, with adjustable stem and lock nut		
	Metal Tripod for Dial Gauge		
	Cutting Collar		
	Rammer 2.6 kg, 310 mm controlled drop		
	Rammer 4.9 kg, 450 mm controlled drop		
	Proving Ring Capacity 50kN		
	Dial Gauge 50 mm travel, 0.01 mm least count		

SCHEME IV

UPGRDTAION OF CAD LAB

S. no	Equipment	Quantity	Approx. Amount
1	STAAD.PRO	05 Users	Rs. 2,50,000/-
2	ETABS	10 Users	Rs.2,30,000/-
Total			Rs. 4,80,000/-

SCHEDULE-III

CHANDIGARH COLLEGE OF ENGG. & TECHNOLOGY, CHANDIGARH
SPECIFICATIONS AND ALLIED TECHNICAL DETAILS OF EQUIEPENTS
AND SCHEUDLE OF REQUUIRMENT FOR ELECTRONICS & COMMUNICATION ENGG. DEPTT.

Scheme-1

SNO	LAB	EQUIPMENT	COST	MODE OF PURCHASE	JUSTIFICATION
1	Wireless Communication	**1. Advance GSM Trainer Kit**	65,000	Tender	As per university syllabus 2012-2013
		2. Bluetooth Development board Bluetooth hardware modems, with LCD Display for adhoc network	55,000	Tender	As per university syllabus 2012-2013
		3. Wi-Fi (IEEE 802.11b) Application Kit	65,000	Tender	As per university syllabus 2012-2013
		4. CDMA Trainer Kit	80,000	Tender	As per university syllabus 2012-2013
		5. Portable Spectrum Analyzer	75,000	Tender	As per university syllabus 2012-2013
		6. QUALNET SIMULATOR SOFTWARE FOR 30 USERS	6,00,000	Tender	As per university syllabus 2012-2013
		7. COMPUTERS(Window 7,Core i5,4GB RAM,220GB Hard Disc),Keyboard, Mouse	6,00,000	Tender	As per university syllabus 2012-2013
		8. UPS 7.5KVA(Slew rate 2Hz/sec,2 wires plus ground)	1,50,000	Tender	As per university syllabus 2012-2013
2	DIGITAL COMMUNICATION	**1. ASK, PSK,FSK,QPSK trainer kit**	15,000	Tender	As per university syllabus 2012-2013
		2.QAM trainer kit	15,000	Tender	As per university syllabus 2012-2013
		3. Pulse Code Modulation trainer kit	30,000	Tender	As per university syllabus 2012-2013

3	SEMICON DUCTOR	**1. Common Base Kit** **2.Common Emitter Kit** **3.Common Collector Kit**	15,000 15,000 15,000	Tender Tender Tender	As per university syllabus 2012-2013 As per university syllabus 2012-2013 As per university syllabus 2012-2013
4	OPTICAL FIBRE COMMUNI CATION	**1.WDM KIT**	65,000	Tender	As per university syllabus 2012-2013
		Total	18,60,000		

S.NO	EQUIPMENT	SPECIFICATION	QTY.	COST TOTAL COST			
01.	DIGITAL COMMUNICATION LAB	**ASK, PSK,FSK,QPSK** Input : From the Transmitter Kit. • Output : 2 Channel TDM Multiplexed Data Stream • De conditioning Options : NRZ (M), RZ, AMI, RB Bi phase (Manchester) , Bi phase (Mark), differentially encoded dibit pair to NRZ (L) • Carrier Demodulation : ASK Rectifier Diode FSK PLL Detector PSK & DPSK Square Loop Detector QPSK Fourth Power Loop Detector • Bi phase clock recovery : by PLL • Test Points : 54 • Interconnections : 2/4 mm socket • Power : 220 V± 10%, 50/60 Hz, 6VA (approx)	01	15,000			
		QAM trainer kit • Data Speed: Fixed greater than 4.5KHz. • Data Format: Synchronous with carrier. • Data Sequence : 24 bit User Selectable data with the help of 3x8 Dip Switches. • Data Coding: Tri-bit data coding for generating C, Q and I signals from 24 bit user data. • Sine & Cosine Carrier Generator: 4.5KHz(approx.) • Fault Switches: 16 fault switches for easy fault creation. • Test Point: More than 35 test points for intermediate signal display. • Power Supply: In built power supply. • Assembled in ABS Plastic	01	15000			

		Box with cover & circuit screen printed PCB with 2mm socket for test points & to see the waveforms **PULSE CODE MODULATION** Crystal frequency- 16 Mhz On-board analog signal- 2-4 Khz Input channels- 2 Multiplexing- TDM Modulation- PCM Sync. Signal- Pseudo random sync. Code gen. Error check code- Off odd even hamming Operating mode- 320 Khz/channel Slow- 1.9 Hz/channel PC-PC communication-2 channel via RS232 Test Points- 50 Main Supply- 230 V +/- 10 %, 50Hz Weight- 1.3 Kg	03	30000			
02	SEMICONDUCTOR	**COMMON BASE, COMMON EMITTER** Trace frequency range-500 Hz-500Khz Collector sweep freq. range- 0-20V No. of base steps selection- 0-16 step Sweep freq. range- 500 Hz-500Khz Range- 0-300uA(moving coil) **COMMON COLLECTOR KIT** Max. collector base supply- +/-12V Max. emitter base power supply- +/-5V Test points- 16 Inter connections- 2 mm socket Internal power supply- +/-	03 (each) 03	30000 15000			

		12V, +/-5V, 200ma Main supply- 230V +/- 10%, 50Hz Power consumption- 5 VA (approx) Dimensions- W325* H90 *D255 Weight- 1.1 Kg					
03	OPTICAL FIBRE COMMUNICATION	**WDM KIT** Data Generators : 2 nos. (15 Bit Data) Comparators : 2 nos. (5V TTL Output) Light Sources : 2 nos, Laser Diode, Power Output -3dB Optical Detectors : 2 nos, Photo Diode, Measuring Range +3dB -50dB WDM Coupler : 2X1, Coupling Ratio 50:50, Operating Wavelengths (all) : 1310nm & 1550nm Connector types (all) : FC Fiber Optic Cable : Single Mode, 25Km (Optional) PC-PC Communication : Using 2 Channels (RS-232 Port) Advance Fiber optics Lab : 2 Kg approximately Fiber Spool 25Km (Optional) : 3 Kg approximately Power Supply : 230 V 10%, 50/ 60Hz Power Consumption : 3.5 VA approximately Weight : 2.3 Kg approximately Dimensions (mm) : W 450 × D 280 H 113 Included Accessories : Patch cord 16” (2mm) : 10 nos. Mains cord : 1 no. RS232 Cable, Length 1 meter : 2 nos. Learning material : Online (Theory, procedure,reference results, etc)	01 Total	65,000 1,70,000/-			

Specifications of Wireless Communication Lab

S.N.	Specifications	Qty	Cost	Total Cost
01.	**Advance GSM Trainer Kit** GSM Development module with 3 band communication (900,1800.1900) with on board Mini sim Card reader. FME Antena connector support. Operating status LED 8 nos. Onboard Handset audio interface , V.24/V.28 Interface on the connectors, Windows Drivers software for GSM Applications, On Board 89C51 Controllers RJ11 Connector for handset connection, Sim Card Holder , on board 16x2 LCD Display , 4 seven segment display with 2 on board relays for action. On board Buzzer ,with all port controller available . On board ADC and provision for temp sensor and wireless monitoring . User manual .Proper documentation, workbook, user manual. Applications / experimental Interface ;- The system must be supplied with GSM Appliaction Experiments :- 1)driving LEDs thru SMS programming thru 8051 Controllers , with all port pins available Modules for batter study and approach of programming Like 14 GSM based dialing system with a 4x4 matrix keypad facility to dial/send an SMS b) Facility for Electronic Rolling Display using GSM technology for massage updates thru any cell phone , Demo programs/ windows software etc	01	65,000	65,000
02.	**Bluetooth Development board** **Bluetooth hardware modems, with LCD Display for adhoc network** Bluetooth Ver. 2.0+ EDR certification Transmit Power up to +18 dBm(class1) Hold, Sniff, Park, Deep sleep mode 3.0V to 3.6V operation, Full Bluetooth Data rate over UART and USB Support up to 7 ACL links and 3 SCO links Enhanced Data Rate(EDR) compliant for both 2Mbps and 3Mbps modulation modes Interface: USB, UART& PCM (for voice codec) Support for 802.11 Co – Existence, Module with Bluetooth stack. Open field range of 10+ meters, Low current consumption for long battery life, 2.4GHz Frequency Hopping Spread Spectrum (FHSS) technology ensures Based on MCS51 processor at 11.0592 mhz clock, 64k Flash memory, 32 Digital i/o ,With real time clock , E2PROM 4K (support I2c bus)sample programs and experimental manual serial port.On board stepper motor interface, On board LCD display, On board relay & buzzer interface for switching devices through Bluetooth. With Bluetooth Dongle.	01	55,000	55,000
03.	**Wi-Fi (IEEE 802.11b) Application Kit** WI-FI Serial adaptor , with RS 232 interface Ethernet conversion. Configuration monitoring tools Configuration tools through Serial. AT command Set-Protocol with 8051 processor telnet com port control protocol. Wi-fi development board with access point. RS-232 to Wi-Fi conversion, Wi-Fi scanner Based on MCS51 processor at 11.0592 mhz clock, On boards ADC / DAC WITH 4 k Eeprom Two 12V relays with isolated O/Ps. LCD display with 4x4 Keypad DIP switches digital input / output On boards LM35 Temp interface and example of control thru relays.	01	65,000	65,000

04.	**CDMA Trainer system** **AC, DC power supply** Input : AC 220V±10% Output : DC ±12V±5%, ±5V±5%, -8V±5% **CDMA Transmitter Receiver** Signal code speed : 1kbit/s, 2kbit/s Spread spectrum code speed : 100kbit/s, 200kbit/s Spread spectrum gain : 50, 100, 200 Spread spectrum mode : direct spread spectrum Modulation mode : PSK, DPSK Carrier frequency : 10.7MHz	01	80,000	80,000
05.	**Portable spectrum analyzer** Frequency Coverage: 950-2150 MHz L-Band, continuous precision rotary encoder tuning Extendable with MFC's Frequency Display: ±100 KHz, On Screen Span: Greater than 1,200 MHz - 03 MHz; 100 kHz Resolution Bandwidth: Greater than -85 dBm Typical-10 dBm, -30 dBm, -50 dBm RF Sensitivity: 5dB/Div Reference Levels: ± 2 dB TypicalScale: 40 dB On Screen Amplitude Accuracy: Type-N, 50 Ohm, N/F Adapter Included+13/18 VDC & 22 KHz Signal Dynamic Range: 9.5" W x 4.5"H x 9.5" D/8 lbs Input Connectors: 9.5" W x 4.5"H x 9.5" D/8 lbs 85 - 265 VAC 50/60 Hz, 12VDC, Vehicle Power Cable Included Internal Li-Ion Battery Pack and Smart Charger 5.7" High Contrast ¼ VGA	01	75,000	75,000
06.	**QUALNET SIMULATOR SOFTWARE FOR 30 USERS**	01	6,00,000	6,00,000
07.	**COMPUTERS(Window 7,Core i5,4GB RAM,220GB Hard Disc),Keyboard, Mouse**	20	30,000	6,00,000
08.	**UPS 7.5KVA(Slew rate 2Hz/sec,2 wires plus ground)**	01	1,50,000	1,50,000