

Ref.No:RGUKT/Proc/Ch.Engg/MTOL/T8/E-2013, dated:03.08.2013

BID DOCUMENT

Open Competitive Bid (OCB)

(e-Procurement)

For

**Supply and Installation of Equipments
To the Mass Transfer Operations Lab of Chemical
Engineering Department
at the three campuses of
Rajiv Gandhi University of Knowledge Technologies**

Proprietary & Confidential



**RAJIV GANDHI UNIVERSITY OF KNOWLEDGE
TECHNOLOGIES**

**Ground Floor, Vindhya C4 Building,
IIIT-H Campus, Gachibowli**

HYDERABAD- 500 032

Phone: 040-23001830

Proprietary & Confidential

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News paper advertisement

E-Procurement Tender Notice

RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES



**Ground Floor, Vindhya C4 building, IIIT- H Campus,
Gachibowli, HYDERABAD- 500 032**

Phone: 040-23001830

Ref: RGUKT/Proc/Ch.Engg/MTOL/T8/E-2013 dated: 03.08.2013

Online tenders are hereby invited from reputed **manufacturer/ authorized representatives** for supply and installation of equipments for the following labs of Chemical Engineering Department to the three RGUKT campuses located at Basar in Adilabad dist, Nuzvid in Krishna dist and R.K. Valley in YSR Kadapa dist, in AP.

- i) Mass Transfer Operations Lab
- ii) Chemical Reaction Engineering Lab
- iii) Analytical and Laboratory equipments

1. Tenderers can download the tender schedules from e-procurement Platform www.eprocurement.gov.in from 04.08.2013 onwards. Tenderers need to submit the bids separately for each lab online by uploading all the required documents through www.eprocurement.gov.in. **The last date for submission of tenders online is 23.08.2013 up to 05:00PM**

For further details regarding Tender Notification & Specifications please visit website: www.eprocurement.gov.in and www.rgukt.in

Date: 03.08.2013

**Sd/-
Registrar**

Time schedule of Tender related events
(Mass Transfer Operations Lab)

Bid calling date	03.08.2013
Bid Document fee	Rs. 1,000/- (By way of DD from any Nationalized Bank)
Bid Documents Downloading Start date	04.08.2013
Bid Document Downloading End Date	23.08 .2013 till 04:00PM
Pre Bid Meeting	13.08.2013 at 03:00PM
Last date for uploading documents online	23.08.2013 at 05:00 PM
Last date for Submission of documents (hard copies)	24.08.2013 at 04.00 PM
Technical Bid opening date/time	26.08.2013 at 03:00 PM.
Price Bid opening date/time	27.08.2013 at 03.00 PM
Contact person	Registrar, RGUKT
Reference No.	RGUKT/Proc/Ch.Engg/MTOL/T8/E-2013, dated 03.08.2013

Note: The dates stipulated above are firm and under no circumstances they will be relaxed unless otherwise extended by an official notification or happen to be Public Holidays. For the assistance in the online submission issues, the bidder may contact the help desk of M/s. Vayam Technologies (e-procurement) at their e-mail address: helpdesk.eproc@vayamtech.com

SECTION - I
INVITATION FOR BIDS

Reference: No: RGUKT/Proc/Ch.Engg/MTOL/T8/E-2013, dated 03.08.2013

Subject: Tender for supply and installation of equipments to the Mass Transfer Operations Lab of Chemical Engineering Department to the three campuses of RGUKT located at Basara (Adilabad Dist), Nuzvid (Krishna Dist) and RK Valley (Kadapa Dist) – Reg..

Sir/Madam,

- 1) Bids are invited on the e-procurement platform from the eligible manufacturers or their authorized distributors for supply and installation of equipments to the Mass Transfer Operations Lab of Chemical Engineering Department to three campuses of RGUKT located at Basara (Adilabad Dist), Nuzvid (Krishna Dist) and R K Valley (YSR Kadapa Dist). The details of bidding conditions and other terms can be downloaded from the electronic procurement platform of Government of Andhra Pradesh i.e. www.eprocurement.gov.in
- 2) Bidders would be required to register on the e-Procurement market place “www.eprocurement.gov.in” and submit their bids online. On registration with the e-Procurement market place they will be provided with a user id and password by the system through which they can submit their bids online.
- 3) The bidders need to scan and upload the required documents as per the Check list given. Such uploaded documents pertaining to technical bid need to be attached to the tender while submitting the bids on line. The attested copies of all these uploaded documents of technical bid, signed undertaking of tenderer should be submitted off line to Registrar, RGUKT, Hyderabad by 04.00 PM of 24.08.2013 The RGUKT will consider only the bids submitted through on-line copies of the paper based bids.
- 4)
 - a) The participating bidder/s will have to pay tender processing fee (non-refundable) for the amounts specified in the Schedule of Requirements, in the form of Demand Draft drawn from any Nationalized Bank, in favour of Registrar, RGUKT, Hyderabad. Payable at Hyderabad.
 - b) Further the bidder/s shall furnish, as part of it bid, the Bid security for the amounts specified in the Section-II of Tender Document be paid in the form of an unconditional and irrevocable Bank Guarantee issued by any

Nationalized bank in the standard format as shown in the Tender Schedule or a crossed Demand Draft drawn in favour of Registrar, RGUKT, Hyderabad along with bids.

- c) Further all the participating bidders have to electronically pay a non-refundable transaction fee to M/s. APTS, the service provider through "Payment Gateway Service on E-Procurement platform", as per the Government Orders placed on the e-procurement website.
- d) RGUKT will not accept the tenders from blacklisted companies or undependable Suppliers whose past performance with RGUKT was found poor due to delayed and/or erratic supplies and those with frequent product failures, and also against whom there have been adverse reports of Sub-Standard Quality / Poor Service of Equipment supplies, as defined in the other parts of the Bidding document.

For any clarification and further details on the above tender please contact Telephone No: 040-23001830 or Contact in Person during office hours.

SECTION-II

STATEMENT OF IMPORTANT LIMITS/VALUES RELATED TO BID

Item	Description
EMD	Rs. 75,000/- by way of Demand Draft from any Nationalized Bank or by way of irrevocable bank guarantee from any Nationalized Bank only. DD/BG from other than Nationalized Banks will not be accepted.
Bid Validity Period	90 days from the date of opening of Financial bid
EMD Validity Period	90 days from the date of opening of Financial bid
Warranty Period	3 years Comprehensive Warranty
Variation in quantities/number of residents	± 40 %
Period for furnishing performance Security Deposit	Within 15 days from date of receipt of award
Delivery Schedule	Bidder shall deliver the goods in one single lot within 120 days from the date of award of the contract. In case of imported equipment 150 days.
Performance security value	<ol style="list-style-type: none">1. 5% of contract value by way of irrevocable Bank Guarantee from any Nationalized Bank2. 10% of contract value by way of irrevocable Bank Guarantee in case of imported equipment.
Performance security validity period	38 months from award of contract (including 30 days of installation period)

Period for signing the order Acceptance	Within 15 days from date of receipt of notification of award
PAYMENT TERMS	
On delivery at user site	<p>Payment for goods and services shall be made in Indian rupees as follows.</p> <ol style="list-style-type: none"> 1. 80% of payment will be paid after installation, commissioning 2. Balance 20% will be paid after 3 months after obtaining the satisfactory certificate from the Director, RGUKT IITs 3. In case of equipment from foreign country LC will be opened for 100% and 90% of payment will be paid on delivery & submission of documents and remaining 10% will be paid after installation and commission.
Maximum Liquidated Damages for late deliveries	<p>For delays:- If the supplier fails to deliver any (or) all of the goods or perform the services within the time period specified in the contract the purchaser shall without prejudice to its other remedies under the contract deduct from the contract price as liquidated damages a sum equivalent to 0.25% of the contract value per day until actual delivery or performance up to a maximum deduction of 10% of the delayed goods or services contract price. Once the maximum deduction is reached, the purchaser may consider the termination of the contract duly forfeiting the performance security etc.,</p>
Placing work order	<ul style="list-style-type: none"> ➤ RGUKT will place order on identified successful bidder. ➤ All the payments shall be made directly by RGUKT to the successful bidder as per the tender terms and conditions. ➤ If decided RGUKT can split the order basing on the quoted price and service track record. The decision of RGUKT is final in this regard.

Transaction Fee	Transaction fee: All the participating bidders who submit the bids have to pay an amount @ 0.03% of their final bid value online with a cap of Rs. 10,000/- for quoted value of purchase up to Rs.50 crores and Rs.25000/- if the purchase value is above Rs.50 crores & service tax applicable @ 12.36% as levied by Govt. of India on transaction fee through online in favour of MD, APTS. The amount payable to APTS is non refundable.
Transaction Fee Payable to	The Managing Director, A.P. Technology Services Ltd., Hyderabad
Bid submission	Online. Bidders are requested to submit the bids after issue of minutes of the pre bid meeting duly considering the changes made if any, during the pre bid meeting. Bidders are totally responsible for incorporating/complying the changes/amendments issued if any during pre bid meeting in their bid.
Procedure for Bid Submission	Bids shall be submitted online on www.eprocurement.gov.in platform <ol style="list-style-type: none"> 1. The participating bidders in the tender should register themselves free of cost on e-procurement platform in the website www.eprocurement.gov.in 2. Bidders can log-in to e-procurement platform in Secure mode only by signing with the Digital certificates. 3. The bidders who are desirous of participating in e-procurement shall submit their technical bids, price bids as per the standard formats available at the e-market place. 4. The bidders should scan and upload the respective documents in Pre-Qualification and Technical bid documentation including EMD. The bidders shall sign on all the statements, documents certificates uploaded by them, owning responsibility for their correctness/authenticity.

	<p>5. The hard copies of all the uploaded Technical / Price bid, to be attested by a Gazetted Officer or properly notarized.</p> <p>6. The rates should be quoted in online only</p>
Other conditions	<p>1. After uploading the documents, the copies of the uploaded technical bid documents, for evaluation and original Demand Drafts in respect of Bid Security and Bid document fee are to be submitted by the bidder to the “The Registrar, RGUKT, Vindhya-C4 Building, IIIT Campus, Gachibowli, Hyderabad-32”, by 04:00PM on 24.08.2013.</p> <p>Failure to furnish any of the uploaded documents, certificates, will entitle in rejection of the bid. The RGUKT shall not hold any risk on account of postal delay. Similarly, if any of the certificates, documents, etc., furnished by the Bidder are found to be false / fabricated / bogus, the bidder will be disqualified, blacklisted, action will be initiated as deemed fit and the Bid Security will be forfeited.</p> <p>2. RGUKT will not hold any risk and responsibility regulating non-visibility of the scanned and uploaded documents.</p> <p>3. The Documents that are uploaded online on e-market place will only be considered for Bid Evaluation.</p> <p>4. Important Notice to Contractors, Suppliers and Department users (i) In the endeavor to bring total automation of processes in e-Procurement, the Govt. has issued orders vide G.O.Ms.No. 13 dated. 5.7.2006 permitting integration of electronic Payment Gateway of ICICI/HDFC/Axis Banks with e-Procurement platform, which provides a facility to participating suppliers / contractors to electronically pay the transaction fee online using their credit cards.</p>

SECTION-III

TENDER SCHEDULE

1. PREAMBLE:

The Registrar, Rajiv Gandhi University of Knowledge Technologies (RGUKT), Hyderabad invites tenders for supply and installation of Mass Transfer Operations Lab equipments to its three campuses located at Basar (Adilabad District), Nuzvid (Krishna District) and RK Valley (YSR Kadapa District), through e-procurement platform.

2. SCOPE OF WORK

Supply and installation of Mass Transfer Operations Lab equipments to the three campuses of RGUKT located at Basar (Adilabad Dist), Nuzvid (Krishna Dist) and R K Valley (YSR Dist).

3. EARNEST MONEY DEPOSIT / SECURITY DEPOSIT:

3.1 The tender should be accompanied by Earnest Money Deposit (EMD) for **Rs. 75,000/-** by way of crossed Demand Draft/ Bank Guarantee issued/ drawn from any Nationalized Bank in favor of "Registrar, RGUKT" payable at Hyderabad. Tenders received without EMD will be summarily rejected.

3.2 Forfeiture of the EMD will be made in the following events:

3.2.1 Withdrawal of bid during the bid validity period.

3.2.2 In case of successful bidder, if the bidder fails to sign the contract in time or fails to submit performance guarantee.

4. PERFORMANCE SECURITY:

4.1 The successful bidder has to deposit 5% for indigenous equipments and 10% in case of imported equipment (foreign origin) of the total contract value as performance security deposit in the form of Bank Guarantee from any Nationalized Bank.

4.2 The Performance Security Deposit / Bank Guarantee of successful bidder will be retained for the period of contract in force and will be

returned after expiry of contract, after deducting the outstanding liabilities if any.

- 4.3 The Performance Security Deposit / Bank Guarantee shall not carry any interest.

5 ELIGIBILITY CRITERIA

5.1 This bid is open to all firms within India who are eligible to do business under relevant Indian laws as in force at the time of bidding, subject to meeting the pre-qualification criterion. They should provide list of customers of previous supply of similar/ same items to IITs, NIT's or Central Universities or any Academic Institute of National repute with contact details. Copies of orders received from the reputed firms on bidding firm need to be submitted.

5.2 The bidder should have servicing facility or work shop with in India so the provision of service is possible at a short notice and without incurrance of delay.

5.3 The Bidding firm should have minimum turnover as follows:

Bid Value offered against the tender call	Last financial year's business turnover
Up to 25 lakhs	50 lakhs
More than 25 lakhs	1 crore

The bidder should have adequate experience in supply of such materials as required in the tender. Bidder should furnish proof of having supplied such materials as required in the tender in the previous financial year ending 31st March 2012 as mentioned above. A certificate indicating the Turn Over value details (in Rupees) of subject material, during the financial year 2012-13 (for the year ending 31.03.2013) from a Firm of Chartered Accountants must be enclosed (in original) as a proof for Turnover. The Turn Over of the subject Material must be separately indicated in the certificate.

- 5.4 The bidder should furnish satisfactory performance certificate from the parties concerned to whom bulk supplies were effected, in case such supplies were made. RGUKT may contact any such parties to elicit details.
- 5.5 Bidder should be registered under VAT Act/CST Act with the relevant State Sales Tax Authorities. He should furnish along with the bid document, the relevant VAT/CST Registration Document and PAN / TAN Card copies.
- 5.6 All bidders shall also include the following information and documents with their tenders (in the Technical bid cover)
- 5.6.1 Copies of original documents defining the constitution or legal status, place of registration, and principal place of business of the bidding firm/entity; written power of attorney of the signatory of the Bid to commit the Bidder.
- 5.6.2 Machinery/equipment owned by the bidder and number of employees.
- 5.6.3 Latest Income Tax returns and **VAT/ CST** Returns filed.
- 5.6.4 List of Present Clientele with contact addresses & telephone numbers.
- 5.7 All the certificates furnished along with technical bids should be attested by a Gazetted Officer, counter signed by bidder along with their seal.

The bidders must submit all relevant documentary evidence to support their claim for eligibility in placing bid. **The tenders received without the above documents will be rejected.**

6. INSTRUCTIONS TO BIDDERS

- 6.1 Tenders with over writings, alterations etc., will not be admitted unless they are attested by the bidder. Where there is a discrepancy between the amount (Rupees) in figures and words, the price, which is least of the two, will prevail.
- 6.2 Bid should be strictly in conformity with the Terms and Conditions mentioned in the tender schedule.
- 6.3 Bidders are expected to examine all the terms and instructions mentioned in the tender schedule and prepare their proposals accordingly. Failure to provide all requisite information will be at the bidders' own risk and may result in the rejection of the tender.

- 6.4 All assertions made in connection with the tender are to be supported / substantiated by relevant documents. The Registrar, RGUKT reserves the right to verify the credentials of the bidder as per the eligibility criteria.
- 6.5 The Registrar, RGUKT will notify the bidder whose tender has been accepted.
- 6.6 The successful bidder shall execute an agreement with RGUKT on Non-judicial stamp paper worth Rs.100.00 agreeing to all the conditions of the contract 15 days upon intimation of acceptance of Tender. The successful bidder has to submit performance security guarantee after taking Letter of Intent but before having contract agreement. Failure on enter into an agreement within the stipulated time will result in forfeiture of the EMD.

The Registrar, RGUKT reserves the right to issue instructions / modifications at any point of time before award of contract.

7. METHOD OF SUBMISSION:

Bids shall be submitted online on www.eprocurement.gov.in Platform.

- 7.1. The participating bidders in the tender should register themselves free of cost on e-procurement platform in the website www.eprocurement.gov.in
- 7.2. Bidders can log-in to e-procurement platform in Secure mode only by signing with the Digital certificates.
- 7.3. The bidders who are desirous of participating in e-procurement shall submit their technical bids, price bids as per the standard formats available at the e-market place.
- 7.4. The bidders shall sign on all the statements, documents certificates uploaded by them, owning responsibility for their correctness/authenticity.

- 7.5. The bidders should scan and upload the respective documents in Technical Documentation as per the check list.
- 7.6. After uploading the documents, the copies of the uploaded technical bid documents, and original Demand Drafts in respect of Bid Security and Bid document fee are to be submitted by the bidder to the “The Registrar, RGUKT, Vindhya-C4 Building, IIT Campus, Gachibowli, Hyderabad-32”, by **4:00PM on 24.08.2013.**
- 7.7. Failure to furnish any of the uploaded documents, certificates, will entitled in rejection of the bid. The RGUKT shall not hold any risk on account of postal delay. Similarly, if any of the certificates, documents, etc., furnished by the Bidder are found to be false / fabricated / bogus, the bidder will be disqualified, blacklisted, action will be initiated as deemed fit and the Bid Security will be forfeited.
- 7.8. RGUKT will not hold any risk and responsibility regulating non-visibility of the scanned and uploaded documents.
- 7.9. The Documents that are uploaded online on e-market place will only be considered for Bid Evaluation.
- 7.10. Important Notice to Contractors, Suppliers and Department users (i) In the endeavor to bring total automation of processes in e-Procurement, the Govt.hasissued orders vide G.O.Ms.No. 13 dated. 5.7.2006 permitting integration of electronic Payment Gateway of ICICI/HDFC/Axis Banks with e-Procurement platform, which provides a facility to participating suppliers / contractors to electronically pay the transaction fee online using their credit cards.

In case of consortium either the prime bidder or the consortium partner can purchase the bid document. The bid can be filed either with user ID of prime bidder or consortium partner.

- 7.11. The rates should be quoted online only.

8 EVALUATION PROCEDURE:

- 8.1 The Tenders will be opened on 26.08.2013 at 03:00 PM by the Registrar, RGUKT or his authorized representative in the presence of the bidders or their authorized representative who may be present at that time.
- 8.2 The Technical Bids will be opened on 26.08.2013 at 03.00 PM. The tenders will be evaluated so as to ascertain the capability of the bidders to provide the material within the period mentioned above and also to assess whether the bidder satisfies the eligibility criteria as detailed in Clause 5 above.
- 8.3 The rejection of the bidder on technical grounds will be based on the failure to meet eligibility requirements.
- 8.4 The committee may reject a bid for non conformance of the specifications.
- 8.5 Price Bid of only those bidders, who have fulfilled the eligibility criteria specified in Clause '5', 8.2 and 8.4 above, will be considered and who does not fulfill the eligibility criteria will not be considered and their tender rejected.
- 8.6 Any claims or disputes raised by the unsuccessful bidders in respect of selection process and non-allotment of award will have no legal validity and will not be enforceable against the RGUKT. No further correspondence will be entertained regarding the disqualification.
- 8.7 The Registrar, RGUKT reserves the right to accept or reject any / or all the tenders without assigning any reasons whatsoever. The Registrar, RGUKT also reserves the right to cancel the selection process for award of the contract at any time. The decision of the Registrar, RGUKT is final and binding.

9. PENALTY CONDITIONS :

9.1. 0.25% will be deducted from total value of the order for each day of delayed supply, and maximum of 10% will be deducted, if delay continues beyond 10% the contract is liable for termination. If contract is terminated the bidder forfeits the performance security Deposit etc.,

(NOTE: Delivery and installation must be made in a single lot within the delivery date agreed at the time of award of contract)

9.2. If the contract is terminated, as per clause 9.1 above the performance security will be en-cashed by Registrar, RGUKT and the bidder forfeits it.

9.3. In case after random check of equipment of the supplied lot, if it is found to be non conforming to the technical specifications then entire lot of such equipment will be rejected. In this case the Registrar, RGUKT shall encash the performance security deposit. The bidder shall have no claim to any payment towards the transaction.

10. VALIDITY OF THE CONTRACT

The contract quoted bid price shall remain valid for a period of 365 days from the date of issue of purchase order.

11. GENERAL TERMS & CONDITIONS

12.1. The supply, installation and Commissioning of Mass Transfer Operations Lab Equipments shall be at the three IITs under the RGUKT located at

1. Basar, Adilabad District
2. Nuzvid, Krishna District
3. R K Valley (Idupulapaya), Kadapa District

12.2. Goods are to be supplied as per the specification and quantity. Details are annexed to this bid document.

12.3. Delivery and distribution:

General Clause: The goods need to be supplied (in case of equipment need to be installed and commissioned) within the stipulated time agreed upon in the contract.

If no such clause exists in the contract, this period may be treated as 120 days from the signing on Supply Agreement Form.

Bidder shall deliver the goods in one lot within 120 days from the date of award of the contract.

12.4. All goods/ equipment supply shall carry a comprehensive warranty period of 3 years. Within the warranty period, in case of any damage to the supplied material like breakage, wear and tear, Electronics defects etc, it will be the responsibility of the supplier to trouble shoot, rectify and restore functioning or replace the damaged material within 7 working days.

12.5. A random sample of any item will be picked from the lot of items delivered by the bidder to the three campuses of RGUKT. This sample will be subjected to tests, if necessary at labs anywhere in the country to ensure compliance to specifications. If the result indicates non conformance, the entire lot will be rejected and the contract will stand terminated without any liability on the part of RGUKT. In addition, this event shall lead to the forfeiture of the performance security amount.

13. DISPUTES:

All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during or after completion of contract will be settled at Hyderabad only, amicably in a spirit of co - operation and the RGUKT's decision shall be final on all such matters and shall be binding on the Bidder.

14. DISCLAIMER:

- 14.1. Even though adequate care has been taken in the preparation of this Tender Schedule the Bidder should satisfy himself that the Schedule is complete in all respects.
- 14.2. Neither RGUKT nor its employees make any representation or warranty as to the accuracy, reliability or completeness of the information in this tender schedule and it is not possible for the RGUKT to consider the investment objective, financial situation and particular needs of each party who reads or uses the Tender Schedule. Certain prospective Bidders may have a better knowledge of the scope of work than others. Each prospective Bidder should conduct his or her own investigations and analysis and check the accuracy, reliability and completeness of the information in the Tender schedule and obtain independent advice from appropriate sources.
- 14.3. Registrar, RGUKT reserves the right to reject any or all the Bids submitted in response to this request for Proposal at any stage without assigning any reasons whatsoever.
- 14.4. Registrar, RGUKT reserves the right to change any or all of the provisions of this tender Proposal.

15. REJECTION OF TENDERS:

- 15.1. The Registrar, RGUKT reserves the right to cancel the tender process and reject all tenders at any time prior to the award of contract without thereby incurring any liability as against the affected bidder or any obligations to inform the affected bidder of the grounds of acceptance or rejection.

15.2. No bidder is entitled to withdraw his or her offer after submission. In case of such withdrawal, the EMD deposited along with the tender schedule shall stand forfeited.

15.3. For breach of any of the conditions prescribed in the tender or as specified by the RGUKT from time to time, the EMD is liable to the forfeited. Decision of the Registrar, RGUKT in this regard is final and binding on bidders.

16. Requirement :

The following Mass Transfer Operations Lab equipments are required in the specifications mentioned here under for all the three Campuses of RGUKT located at Basar (Adilabad District), Nuzvid (Krishna District), RK Valley(YSR District)

Specifications of Mass Transfer Operations Lab

CH3904: Mass Transfer Operations Lab

Sl. No.	Experimental setup	Quantity required per campus	Total quantity
1	Diffusion in gases	1	3
2	Adsorption studies	1	3
3	Ion exchanger	1	3
4	Liquid liquid extraction- LLE	1	3
5	Solid liquid Extraction -SLE	1	3
6	Steam distillation	1	3
7	Rotary Dryer	1	3
8	Water cooling tower	1	3
9	Simple distillation	1	3
10	Packed distillation column	1	3
11	Sieve plate distillation column	1	3
12	Gas absorption setup	1	3
13	VLE by ebulliometer	1	3

General terms and conditions to be followed by the suppliers/manufacturers

1. Any supplier / manufacturer is eligible to quote the rates for items partially or completely to which tenders are called for
2. While quoting the prices, it should be combined with prices of the accessories insisted in the specifications
3. Where ever additional accessories are essential to be quoted , however, allowed

to do so by quoting separately

4. supplier / manufacturer should provide the clear data of utility requirement list
5. supplier / manufacturer should provide the instruction manual for both the experimental setups and instruments
6. supplier / manufacturer should provide the sample data & calculations and standard results for comparison in case of experimental setups

Specifications for the Mass transfer lab experimental setups

1. Diffusion in gases

- To study the diffusion mass transport of substance in gases
- To apply the Fick's law of diffusion to find the diffusion coefficient
- To find the effect of temperature effect on diffusion
- Experimental setup with transparent tank with magnetic stirrer, 2-tube with capillaries for investigating diffusion in gases
- Evaporation of a highly volatile solvent with a diffusion tube in water bath for investigating diffusion in gas
- Removal of gaseous solvent at upper end of diffusion tube with a fan
- High adjustable travelling microscope for monitoring and determining solvent volume in diffusion tube
- Tank with stirrer of volume made of glass/strong plastic = 10 L
- Stirrer speed = 100 – 1500 RPM
- Diffusion tube uniform pore = 2-3mm diameter and length = 50 -100 mm
- Microscope scale division = 0.1mm
- Measuring range: Temperature= 0 - 30 °C (water should be at ambient temperature)
- Conductivity = 0-200 mS/cm

2. Adsorption studies

- To study the adsorption of dissolved substances on self indicated silica gel / activated carbon
- To find the concentration profiles and break through curves

- To determine the mass transfer zone
- To find the influence of temperature and contact time on adsorption
- Setup provided with 2 adsorbers (one is safety adsorber for closed water circuit) with filled activated carbon and with 8 sampling points.
- The columns should be made with glass like material for better visualization
- The process should be continuous
- Flow rate should be adjustable and water temperature control & digital display of temperature
- Flow rate, temperature and pressure measurement should be available
- Metering pump can be provided for concentrated adsorbate solution
- 2 tanks can be provided, 1 for adsorbate solution and second one for treated water

Size of adsorber and safety adsorber

Diameter: each 50 – 70 mm

Height: 400 -600 mm

Capacity: each 5-6 L

Capacity of tanks for adsorbate and treated water = 40 - 50 L

Flow rates for the pumps

Treated water pump = maximum flow rate of 160-180 L/h

Metering pump = maximum flow rate of 2 L/h

Measuring range for temperature: 0-50 °C

Pressure = 0-2.5 bar

3. Ion Exchanger

- To study the process of water softening and demineralization
- To study the exchange capability of various resins
- By using two bed system
- With regeneration efficiency of cationic and anionic resins
- Provision for testing the hardness and conductivity

- Supplied with online installed conductivity meter
- Supplied with various commercial cationic and anionic resins
- Tubes for bed should be made of glass for visualization
- Provision for using single bed and combined two bed system for water softening and demineralization separately
- With supply tank of capacity 20-30 Liters
- Anion exchange resin tube= 0.75 – 1 Liter
- Cationic exchange resin tube=0.75 – 1 Liter
- Flow meter range =10-100 ml/min
- With self priming diaphragm pump

4. Liquid- Liquid Extraction(LLE)

- Separation of liquid mixture by LLE in counter flow operation and to find height of transfer unit and mass transfer coefficient
- Option is provided with continuous and discontinuous using 2 three-way valves
- Rotating disc contactor Extraction column made of glass
- Provision for changing the height of interface zone
- SS tanks for feed, solvent, raffinate, extract and top product
- 2 pumps to deliver the feed solvent
- 2 valves for adjusting the phase boundary
- Extraction column size: diameter = 40 – 50 mm, height = 1000 -2000 mm

Tanks:

Feed and raffinate: 30-40 L each

Solvent and extract: 15-20 L

Temperature range: 0-150 OC

Pressure range: 1 -6 bar

Conductivity: 0-1990 $\mu\text{S}/\text{cm}$

5. Solid – Liquid Extraction (SLE)

- The set up may consist of Bonnoto type extractor of slotted circular plates

arranged one above the other in opposite radial opening.

- The solids are to be introduced at the top through a hopper spread over the top plate by a rack and pushed to slot or fall to the next plate below and so on to the bottom of the column. The solvent is to be introduced near the bottom of the column and it flow upward counter – currently to solids.
- A pump should supply the solvent and flow rate is to be monitored by means of a Rotameter, at the bottom of column a screw conveyor arrangement is to be done to remove the extracted solids driven by means of an electric motor.
- Solvent feed tank is to be kept in a bath fitted with heater and digital temperature controller is to be used to maintain the constant temperature
- Extraction column made of MS steel or glass with approximate diameter of 140-160 mm and a height of nearly 700-800 mm
- With screw conveyor of compatible capacity which is driven by motor and gear box
- Tank provided for solvent and with measurement of flow rate. Tank volume ranging from 30-40 liters
- Feed should be circulated with pump
- With temperature sensors of RTD type
- With receiving tank made of MS / glass material of capacity equal to feed tank
- With digital control panel

6. Steam distillation

- To study the characteristics of steam distillation
- Distillation vessel with glass with a capacity of 3 Liters
- Provided with steam generator of MS steel consisting of pressure gauge, level indicator, (Preferably this experiment has to run on power based operation) safety valve, insulated with ceramic wool and aluminum cladding
- With separating chamber of borosilicate glass of capacity 2 liters
- Condenser is of shell and tube type of glass make
- Distillation tank made of MS steel of capacity 5 Liters
- Equipped with temperature sensors and data acquisition system

7. Rotary dryer

- To study the operation of rotary dryer
- Study the drying characteristics of a solid material under batch drying conditions
- Drying shell made of SS of length = 1.5-3 m and diameter of 100 – 120 mm
- Feed hopper: MS steel with compatible capacity
- Rotating action can be by motor coupled with a reduction gear box
- With Hot air oven circulation by forced draft fan
- Air flow measurement by velocity meter
- With humidity sensor to measure humidity of inlet and outlet of air
- With control panel for digital indications and data acquisition system

8. Water cooling tower

- To study mass transfer coefficient and visualization of cooling tower operation
- Basic water cooling tower with 10 plate column
- Tower made of glass of size approximately 150 * 150 mm, height= 750 -1000 mm
- Packing is of expanded wire mesh
- Air circulation can be by forced draft fan with arrangement for varying air flow rate
- Air flow measurement by velocity meter or orifice meter
- Water flow measurement by flow sensor or Rotameter
- Dry and wet bulb temperature measurement by humidity sensor
- Hot water tank made of MS steel, double wall insulated with ceramic fiber wool
- Control panel for digital display and computer interface for data acquisition
- Temperature range: 0-70 °C
- Supply cooling tower with 7 plate column and 18 plate columns can be provided as optional

9. Simple batch distillation

- To study the characteristics of batch distillation and to verify the Rayleigh's equation

- Provided with distillation still made of glass with capacity 3-5 L
- With glass condenser of type concentric tube
- Provided with tank for distillate of capacity 2 L
- Provided with power based mantle heater of capacity 2 kW to heat the solution in distillation still
- Provided with inbuilt temperature sensor (thermocouple) for temperature measurement of range 0-150 °C
- A control panel for digital display and computer interface for data acquisition if possible
- Provide an analytical weighing balance with accuracy of 0.5 g and range of up to 2kg
- Provide refracto-meter for analysis of the solution with accuracy of 4th decimal

10. Packed bed distillation column

- To study the distillation in packed bed column
- The column should be made of glass or strong plastic for visualization and packed with Borosilicate Glass rasching rings.
- An electrically heated re-boiler is installed at the bottom of the column. The bottom product is collected in the tank.
- The collecting is of capacity 20-30 Liters
- The vapors from the top of column are condensed in the shell and tube type condenser by circulating cooling water
- Separate arrangement should be made for pumping of cool water with separate pump
- Provision for condensate to be divided into reflux and distillate by automatic reflux divider and R/D varied ratio
- With necessary instrumentation for pressure and temperature measurement

11. Sieve plate distillation (manual and computer interfaced)

- The unit must be fully instrumented feed vessels, pumps, reboiler, condenser, reflux separator, product cooling tanks and bottom product cooler/pre heater

- To determine temperature and concentration profiles
- To determine the pressure losses over the column
- Solution used may be ethanol-water / methyl alcohol-water
- With continuation and discontinuous rectification
- With provision for interchanging columns to compare the sieve plate column with packed bed column
- Sieve plate column with 6-8 plates and minimum of 2-3 feed inlets
- Temperature probes should be installed on all sieve plates to measure the temperature. Also on measurement of temperature for flow streams entering and leaving the condenser and of the feed, product and reboiler temperatures
- Sieve plate column with internal diameter 40-50 mm, height =700-800 mm. should be made up of glass like material for flow visualization
- Provision for reflux ratio form 0-100 %
- Possibility of vaccum system/mode to study the distillation ate reduced pressures (approximately up to 200-300 m bar
- Tanks for feed, bottom product and top product should be provided made up of glass or SS or plastic
 - ☒ Feed tank volume: 5-6 Liters
 - ☒ Bottom product:5-6 Liters
 - ☒ Top product: 2-3 Liters
 - ☒ Phase separation tank (after the condenser) should be provided with 0.5 -1.0 Liters
- Measuring range of temperature is 0-150 °C
- The overall height of the unit must not exceed 2.5 meters
- Provided with evaporator which runs of electrical power
- Provided with software with control function and data acquisition via USB interface
- Control options must include
 - ☒ Manual control of feed rate, reboiler power and reflux ratio
 - ☒ Alarm setting
 - ☒ Adjustable PID control of the power to the reboiler heater from a temperature sensor
 - ☒ Alternative algorithms for controlling the reflux ratio, in particular by programmed variation with time and from a column temperature
 - ☒ 'two point' temperature control of reboiler power and reflux ratiom simultaneously

- ▣ Must be with all suitable controllers like PLC and PID wherever necessary
- The provision should be made available to operate the experiment manually and with computer interfaced

12. Gas absorption setup

- Study of the basic principles of the absorption and desorption of a gas liquid operation using a packed columns with counter current operation.
- It should have the ability to demonstrate the gas and liquid quantitative analysis. To determine Mass transfer coefficients and Mass balance
- Determination of flooding characteristics and getting data to find NTU and HTU
- Provision for determination of pressure losses in the column
- Water is used as solvent. Supply of air/co₂ may be from external cylinder or well associated facility with the experimental rig
- Solute gas may be CO₂ or NH₃
- Packed absorption column and desorption column should be made with glass for better visibility
- Height of packed column approximately 1.4 m – 1.6 m and with diameter ranging from 70-90 mm
- Height of desorption column is should be half of the absorption column and with same diameter as absorption column
- The column must be filled with rasching rings
- With a tank for solvent water made up of SS or glass or Plastic with capacity of 40-50 l
- With pump to deliver the liquid to the column
- With compressor for delivering gas into columns with flow rate of 0.1 -0.2 m³/min at about 0.3-1 bar
- Pumps should be installed for absorption and desorption
- With installed flow meters to measure the flow of gas, air and liquid
 - a. Gas flow meter: 1-10 L/min
 - b. Air flow meter: 10-150 L/min

c. Liquid flow meter:1-10 L/min

- With valves to adjust the ratio of gas and liquid
- All the suitable pressure manometers to be provided with the rig
- Also it should be supplied with gas analysis instrument
- With vacuum tank and water jet pump to create the vacuum which helps the separation of solute from solvent and the solvent will be re-circulated back to the feed tank
- Should be supplied with instruction manual and with sample standard experimental data with repeatability

13. VLE by Ebulliometer

- To study the vapor-liquid equilibriums at atmospheric pressure and under vacuum
- Determining the boiling points of different solutions
- Experimental study of vapor liquid phase diagram
- Isobaric phase diagram for boiling and condensation
- Study of ideal and non ideal mixtures (deviation from ideality)
- Study of volatility
- Study of miscible and non miscible mixtures including azeotrope mixtures

Financial Bid

Price Schedule for Goods offered

Please quote amounts in numerals and words at each place.

Sl. No	Name of the Equipment	Total Qty	Unit Price (In Rs) Without Taxes & Duties	Taxes & Duties on Unit Price	Unit Price (In Rs) With Taxes and Duties T(4+5)	Total Price (In Rs) (3*6)
1	2	3	4	5	6	7
1	Diffusion in gases	3				
2	Adsorption studies	3				
3	Ion exchanger	3				
4	Liquid liquid extraction- LLE	3				
5	Solid liquid Extraction -SLE	3				
6	Steam distillation	3				
7	Rotary Dryer	3				
8	Water cooling tower	3				
9	Simple distillation	3				
10	Packed distillation column	3				
11	Sieve plate distillation column	3				
12	Gas absorption setup	3				
13	VLE by ebulliometer	3				

(Signature of Bidder)

ANNEXURE-1

RGUKT. Ref. No: RGUKT/Proc/Ch.Engg/MTOL /T8/E-2013

Bid Security(EMD) form

(To be issued by a Nationalized Bank in India and having at least one branch in Hyderabad)

Whereas.....(here in after called " the Bidder") has submitted its bid
Dated.....(Date). For the execution of(here in after called "the Bid")

KNOW ALL MEN By these present that WE.....ofhaving our

Registered office at(hereinafter called the "Bank") are bound unto
the Rajiv Gandhi University of Knowledge Technologies,. (hereinafter called "The RGUKT") in
the sum offor which payment well and truly to be made to the said RGUKT itself,
its successors and assignees by these presents.

The conditions of these obligations are:

1. If the bidder withdraws its bid during the period of bid validity or
2. If the bidder, having been notified of the acceptance of its bid by the RGUKT during the period of bid validity
 - 1) Fails or refuses to execute the contract form if required; or
 - 2) Fails or refuses to furnish the performance security, in accordance with the bid requirement;

We undertake to pay the RGUKT up to the above amount upon receipt of its first written demand, without the RGUKT having to substantiate its demand, provided that in its demand the RGUKT will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions. This guarantee will remain in force up to and including 45 days after the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

Place:

Signature of the Bank

Date:

and seal.

ANNEXURE-II

RGUKT Ref. No: *RGUKT/Proc/Ch.Engg/MTOL /T8/E-2013*

PERFORMANCE SECURITY FORM

(To be issued by a Nationalized Bank in India and having at least one branch in Hyderabad)

To :.....(Address of RGUKT)

WHEREAS..... (Name of Vendor) hereinafter called "the Vendor" has undertaken, in pursuance of

Contract No.....Dated,.....(Date), to supply.....called "the Contract" AND WHEREAS it has been stipulated by you in the said Contract, that the Vendor shall furnish you with a Bank guarantee by a Nationalized bank for the sum specified therein as security for compliance with the supplier's performance Obligations in accordance with the Contract.

WHEREAS we have agreed to give the Vendor a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Vendor, up to a total of Rs.....and we undertake to pay you, upon your first written demand declaring the Vendor to be in default under Rs..... (Amount of Guarantee) as aforesaid without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until theday of (Date)

Place:

Signature of Guarantors and Seal

Date:

ANNEXURE-III

SUPPLY AGREEMENT FORM

THIS AGREEMENT made the day of..... (Year).Between the Rajiv Gandhi University of Knowledge Technologies (hereinafter "the RGUKT") of one part and..... (Name of Vendor) of..... (City and Country of Vendor) (Hereinafter "the Vendor") of the other part:

WHEREAS the RGUKT is desirous that certain items as described in the bid document and briefly outlined below, should be provided by the Vendor.

Date of tender call:

Title of the project:

Brief outline of the work:

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

In this agreement words and expression shall have the same meanings as are respectively assigned to them in the bid document referred to.

The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.

1. bid documents
2. clarifications issued by RGUKT if any,
3. RGUKT notification of award.

In consideration of the payments to be made by the RGUKT to the Vendor as hereinafter mentioned, the Vendor hereby covenants with the RGUKT to provide the **items and to replace defective items during the warranty period** therein in conformity, in all respects, with the provisions of the contract.

The RGUKT hereby covenants to pay the Vendor in consideration of the provision of the items and **to replace defective items during the warranty period** therein, the contract price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

Brief particulars of the items which shall be provided by the Vendor are as under:

Items	Quantity	Unit price (Inclusive of all taxes and duties)	Total Amount	Remarks

The Bidder further notes and accepts that:-

- Bidder shall deliver the goods in one single lot within 120 days from the date of award of the contract.

Payment terms	
On delivery at user site	<p>Payment for goods and services shall be made in Indian rupees as follows.</p> <ol style="list-style-type: none"> 1. 80% of payment will be paid after installation, and demonstrating of satisfactory functioning on site. 2. Balance 20% will be paid after 3 months after obtaining the satisfactory certificate from the Director, RGUKT IIIT. 3. In case of equipment from foreign country LC will be opened for 100% and 90% of payment will be paid on delivery & submission of documents and remaining 10% will be paid after installation and commission.
Maximum Liquidated Damages for late deliveries	<p>For delays:- If the supplier fails to deliver any or all of the goods or perform the services within the time period specified in the contract the purchaser shall without prejudice to its other remedies under the contract deduct from the contract price as liquidated damages a sum equivalent to 0.25% of the contract value per day until actual delivery or performance up to a maximum deduction of 10% of the delayed goods or services contract price. Once the maximum deduction is reached, the purchaser may consider the termination of the contract duly forfeiting the performance security etc.,</p>

In addition if the contract is cancelled, the performance security will be en-cashed and forfeited.

- In case, after random sampling of the supplied lot, it is found that there is any non conformance to specifications, the performance guarantee will be en-cashed and forfeited and the bidder will have no claim to any payments. The entire lot will be rejected.
- The supply and distribution of Items supplied shall be done at all the three RGUKT campuses located at

- Basar, Adilabad District
 - Nuzvid, Krishna District
 - R K Valley (Idupulapaya), Kadapa District
- There shall be a warranty period of 3 years and within the warranty period, in case of any damage to the supplied material like breakage, wear and tear, Electrical defects etc., it will be the responsibility of the supplier to make working the damaged material.
- A random sample of any size will be picked from the lot of items delivered by the bidder to the three IIITs under the RGUKT. This sample will be subjected to tests, if necessary at labs anywhere in the country to ensure compliance to specifications. If the result indicates non conformance, the entire lot will be rejected and the contract will stand cancelled without any liability on the part of RGUKT. In addition, this event shall lead to the forfeiture of the performance security amount.
 - All disputes and differences of any kind whatsoever arising out or in connection with contract, whether during or after completion of contract will be settled amicably in a spirit of co – operation and the RGUKT decision shall be final on all such matters and shall be binding on the bidder.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year above written.

Signed, and delivered by

Signed, and delivered by

For the Vendor.

For. Rajiv Gandhi University

Vendor's common seal:

of Knowledge Technologies

Place

RGUKT common seal:

Date:

Place:

Date:

In the presence of:.....

BID LETTER FORM

From:

(Registered name and address of the bidder)

To

Rajiv Gandhi University of Knowledge Technologies,

Ground floor, Vindhya C4 Building,

IIT-H Campuses, Gachibowli,

Hyderabad-500032.

Sir,

Having examined the bidding documents and amendments there on, we the undersigned, offer to supply and deliver the Mass Transfer Operations Lab (and other related materials) as the case may be, in conformity with the terms and conditions of the bidding document and amendments thereon in response to your tender call dated.....

We undertake to supply the above mentioned materials, as assigned to us in conformity with the said bidding documents, for an estimated sum of Rs (Total bid amount in words and figures) which may vary in accordance with the schedule of prices attached herewith and coverage options made by RGUKT or its user organization.

If our bid is accepted, we undertake to:

- a. supply the materials according to the time schedule specified in the bid document,
- b. Obtain the performance guarantee from a scheduled bank in accordance with bid requirements for the due performance of the contract, and
- c. Agree to abide by the bid conditions, which remain binding upon us during the entire bid validity period and the bid may be accepted any time before the expiration of that period.
- d. We understand that you are not bound to accept the lowest or any bid you may receive, nor to give any reason for the rejection of any bid, and that you will not defray any expenses incurred by us in bidding.

Place:

Bidder's Signature

Date:

Seal.

BIDDER INFORMATION

1	Name of the organization	
2	Year of establishment	
3	Registered Office Address	
4	Phone No.	
5	Fax No.	
6	Email	
7	Total No. of branch offices in AP	
8	Whether Manufacturer	Yes/No
9	Details of EMD furnished	
10	Details of certificates enclosed.	

Turn over details of item/product – 2012-13

S.No	Item name	Nos. sold	Amount (Rs in Lakhs)

List of Major Customers – 2012-13

S. No	Customer Full Address	Year of supply	Item Name	Turn Over (Rs. in Lakhs)

CHECK LIST

Important:

The Bidder must ensure that the following details in the check list are furnished along with the bid document. The bidder must also carefully go through all the contents of the BID Document and any additional information/documents, required more than the items listed in the check list below, also shall have to be furnished. Non-furnishing of any required information/document as per the Tender Document will lead to rejection of the bid.

S.NO	PARTICULARS	PAGE NUMBER
1	BIDDER INFORMATION	
2	TENDER PROCESSING FEE OF RS.1000/- BY WAY OF DD FROM ANY NATIONALIZED BANK	
3	EMD (DD/BG) FROM A NATIONALIZED BANK	
4	PROOF OF HAVING SUPPLIED MATERIALS DURING THE FY12-13	
5	CERTIFICATES ISSUED BY THE FIRM OF CAS REGARDING TURNOVER OF THE SUBJECT MATERIAL	
6	COPY OF ISO CERTIFICATION	
7	SATISFACTORY PERFORMANCE CERTIFICATE FROM PARTIES	
8	CONSTITUTION/LEGAL STATUS OF THE FIRM	
9	COPY OF REGISTRATION CERTIFICATE	
10	LATEST INCOME TAX RETURNS FILED	
11	VAT/CST REGISTRATION	
12	LATEST VAT/CST RETURNS	
13	POWER OF ATTORNEY, WHEREEVER APPLICABLE	
14	LIST OF MACNINERY/EQUIPMENT OF THE BIDDER	

15	NUMBER OF EMPLOYEES	
16	LIST OF CUSTOMERS OF PREVIOUS SUPPLY OF SIMILAR/ SAME ITEMS TO IITS, NIT'S OR CENTRAL UNIVERSITIES OR ANY ACADEMIC INSTITUTE OF NATIONAL REPUTE INSTITUTIONS	
17	LIST OF SERVICING FACILITY CENTERS OR WORK SHOP WITH IN INDIA	
18	LIST OF PRESENT CLIENTELE WITH CONTACT ADDRESSES & TELEPHONE NUMBERS	
19	THE HARD COPIES OF ALL UPLOADED TECHINACAL BID DOCUMENTS SHOULD BE ATTESTED BY THE GAZETTED OFFICER AND COUNTER SIGN BY BIDDER WITH SEAL	
20	ALL OTHER INFORMATION/DOCUMENTS THAT ARE REQUIRED IN BID DOCUMENTS	

NOTE: All pages of the bid documents must be serially numbered and signed.