Ref.No: RGUKT/Proc/Mech.Engg/ATDL/T13/E-2013, dt:07.12.2013

BID DOCUMENT

Open Competitive Bid (OCB)

(e-Procurement)

For

Supply and Installation of Equipments To the Applied Thermodynamics Lab I & II of Mechanical 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

<u>Proprietary & Confidential</u>

Contents

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

Online tenders are hereby invited from reputed **manufacturer/ authorized representatives** for supply and installation of equipments for the following labs of Mechanical 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. Metrology Lab
ii. Manufacturing Process Lab
iii. Applied Thermodynamics Lab I & II
iv. Robotic Automation Lab

1. Tenderers can download the tender schedules from e-procurement Platform www.eprocurement.gov.in from 07.12.2013 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 26.12.2013 up to 05:00PM**

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

Date: 07.12.2013 **Sd/-**
Registrar

Time schedule of Tender related events

(Applied Thermodynamics Lab I & II)

Bid calling date	**07.12.2013**
Bid Document fee	**Rs. 1,000/- (By way of DD from any Nationalized Bank)**
Bid Documents Downloading Start date	**07.12.2013**
Bid Document Downloading End Date	**25.12.2013 till 04:00PM**
Pre Bid Meeting	**16.12.2013 at 05:00PM**
Last date for uploading documents online	**26.12.2013 at 05:00 PM**
Last date for Submission of documents (hard copies)	**27.12.2013 at 04.00 PM**
Technical Bid opening date/time	**28.12.2013 at 04:00 PM.**
Price Bid opening date/time	**30.12.2013 02.00 PM onwards**
Contact person	Registrar, RGUKT
Reference No.	RGUKT/Proc/Mech.Engg/ATDL/T13/E-2013, dated **07.12.2013**

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/Mech.Engg/ATDL/T13/E-2013, dated **07.12.2013**

Subject: Tender for supply and installation of equipments to the Applied Thermodynamics Lab I & II of Mechanical Engineering Department to the three campuses of RGUKT located at Basar (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 Applied Thermodynamics Lab I & II of Mechanical Engineering Department to three campuses of RGUKT located at Basar (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 27.12.2013 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/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. 1,00,000/- 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	360 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 90 days from the date of award of the contract.
Performance security value	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	Payment for goods and services shall be made in Indian rupees or equivalent value in foreign currency. 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 IIITs 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	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.,
Placing work order	➢ 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 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. 5. The hard copies of all the uploaded Technical / Price bid, to be attested by a Gazetted Officer or

	properly notarized. 6. The rates should be quoted in online only
Other conditions	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 27.12.2013.** 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. 2. RGUKT will not hold any risk and responsibility regulating non-visibility of the scanned and uploaded documents. 3. The Documents that are uploaded online on e-market place will only be considered for Bid Evaluation. 4. Important Notice to Contractors, Suppliers and Department users (i) In the endeavor to bring total automation of processes in e-Procurement, theGovt.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.

SECTION-III

TENDER SCHEDULE

1. PREAMBLE:

The Registrar, Rajiv Gandhi University of Knowledge Technologies (RGUKT), Hyderabad invites tenders for supply and installation of equipments of Applied Thermodynamics Lab I & II of Mechanical Engineering Department 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 equipments of Applied Thermodynamics Lab I & II of Mechanical Engineering Department 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. 1,00,000/-** 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 incurrence 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, IIIT Campus, Gachibowli, Hyderabad-32", by **4:00PM on 27.12.2013.**

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.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.

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:

7.1 The Tenders will be opened on 28**.12.2013** at 04:00 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.

7.2 The Technical Bids will be opened on 28**.12.2013** at 04.00 PM The tenders will be evaluated so as to ascertain the capability of the bidders to provide the material with in the period mentioned above and also to

assess whether the bidder satisfies the eligibility criteria as detailed in Clause 5 above.

7.3 The rejection of the bidder on technical grounds will be based on the failure to meet eligibility requirements.

7.4 The committee may reject a bid for non conformance of the specifications.

7.5 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.

7.6 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.

7.7 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 clash 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 equipments of Applied Thermodynamics Lab I & II of Mechanical Engineering Department shall be at the three IIITs 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 treated as 90 days from the signing on Supply Agreement Form.

Bidder shall deliver the goods in one lot within 90 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 Applied Thermodynamics Lab I & II 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)

Applied Thermodynamics Lab I (ME 3802)
&

Applied thermodynamics Lab II (ME 4701)

DEPARTMENT OF MECHANICAL ENGINEERING

S. No	**Name of the Experimental Test-rig**	Qty
1	VAPOR COMPRESSION REFRIGERATION SYSTEM	3 sets
2	SUMMER AIR-CONDITIONING SYSTEM	3 sets
3	VAPOR ABSORPTION SYSTEM (ELECTROLUX TYPE)	3 sets
4	HEAT TRANSFER IN PIN-FIN APPARATUS	3 sets
5	FLAME PROPAGATION UNIT	3 sets
6	WATER COOLED, MULTI-CYLINDER, 4-STROKE, DIESEL ENGINE TEST-RIG	3 sets
7	WATER COOLED, SINGLE-CYLINDER, VARIABLE COMPRESSION RATIO ENGINE TEST-RIG	3 sets
8	AIR-COOLED, SINGLE CYLINDER, 4-STROKE, DIESEL ENGINE	3 sets
9	AIR-COOLED, SINGLE CYLINDER, 2-STROKE, PETROL ENGINE	3 sets
10	CUT-SECTIONS OF COMPONENTS	3 sets
11	EXHAUST GAS ANALYSER	3 sets

Common note for all the equipment:

1. For each of the experimental test-rig, the vendor must clearly mention the names of the institute(s) to which these rigs are supplied with details and feedback from the respective users.
2. All the measuring instruments used in the experimental test-rigs must be accompanied by the calibration certificates. Vendor should also mention the agency that has issued these certificates.
3. For each of the experimental test-rig, the vendor must supply a complete list of the spares and consumables required, in addition the vendor must quote separately for spares/consumables for 3 years.
4. For each of the experimental test-rig, the vendor must supply the instructions and installation manual. In addition, he should clearly specify special requirements (if any) for site preparation, safety precautions, disposal of consumables etc. as applicable.
5. For all the computer controlled/computer operated test-rigs, the vendor must quote separately without computer control or operation. Also they should state clearly, whether the test-rig can be operated and/or controlled manually, if desired.

1. VAPOR COMPRESSION REFRIGERATION SYSTEM

Objectives of the experiment:

1. Demonstration of the basic refrigeration cycle
2. Plotting pressure-enthalpy diagram from the measured values of pressure and temperature
3. Calculation of actual COP, cycle COP and Carnot COP
4. Calculation of volumetric and isentropic efficiencies of the compressor
5. Calculation of overall heat transfer coefficient of evaporator and condenser

Technical Specification:

a) REFRIGERANT : R-134a / Hydrocarbons

b) HERMETICALLY SEALED COMPRESSOR

Capacity : 0.5 TR

(at 7^{o}C evaporator 54^{o}C condenser temperature)

Type : Reciprocating / Rotary

c) AIR COOLED CONDENSER

Type : FORCED CONVECTION AIRCOOLED

Multi row fin and tube type

d) CONDENSER COOLING FAN

Type : Forced Draft, axial flow

e) WATER COOLED TYPE EVAPORATOR : Shell and coil type with SS tank with

Insulation, top cover and stirrer with motor

f) INSULATION FOR WATER TANK : PUF

g) VARIATION OF LOAD AT EVAPORATOR : 1 kWimmersion heater provided with variac

h) EXPANSION VALVE **:** Thermostatic expansion valve & Capillary tube

(In parallel)

i) THERMOSTATIC EXPANSION VALVE : 1 NO.

Make : Danfoss / Sporlan

Type : Straight charged with Internal equalizer type

Solenoid valve for TEV : Danfoss / Sporlan

ii) CAPILLARY TUBE : 1 NO.

i) REFRIGERANT FLOW MEASUREMNT : 1 No

Type : Rotameter

Range : 5 to 50g/s

Accuracy : 1 g/s

j) HAND SHUT OFF VALVES: Before and after each component

Make	:	Danfoss

k) FILTER DRIER : 1 NO.

Make	:	Danfoss/Sporlan

l) PRESSURE GAUGE : 1 No. (at the inlet to the condenser)

Type	:	Bourdon
Range	:	0 to 300 psig

m) COMPOUND GAUGES : 1 No. (at the inlet to the compressor)

Type	:	Bourdon
Range	:	-30 " Hg to +150 psig

n) HP/LP CUTOUT : 1 NO.

Range	:	-30" Hg to 300 psi
Make and model	:	Danfoss/Sporlan

o) DUAL TYPE DIGITAL WATT METERS FOR COMPRESSOR AND ELECTRICAL HEATER

Range	:	0 to 3000 watts,single phase
Watt resolution	:	1 watt
Type	:	2 RMS
Isolation	:	Electrically isolated
No. of displays	:	one, 4 digit
Computer connectivity	:	through RS485 port on back panel.
Power	:	230V±20% ac, 50Hz.
Operating temperature	:	0-50°C

p) DIGITAL TEMPERATURE INDICATOR : 1 set

Temperature range	:	-30 to 199.9^{o}C
Resolution	:	0.1^{o}C
Type of sensor	:	k-type thermocouples.
No of channels	:	8 channel
No. of displays	:	one, 4 digit
Power	:	230V±20% ac, 50Hz.
Operating temperature	:	0-50°C

Temperatures to be measured and indicated are: 1) Evaporator outlet, 2) Compressor inlet, 3) Compressor outlet, 4) Condenser inlet, 5) Condenser outlet, 6) Evaporator inlet, 7) Temperature of water in evaporator tank, 8) Compressor shell temperature

2. SUMMER AIR-CONDITIONING SYSTEM

Objectives of the experiment:

1. To measure the cooling capacity of the system
2. To calculate Coefficient of Performance (COP)
3. Plotting psychometric chart from the measured dry and wet bulb temperatures and barometric pressure
4. To estimate dehumidification rate
5. To estimate cooling coil by-pass factor
6. To study the effect of pre-heating and re-heating

Technical Specification:

a) REFRIGERANT : R-22/R-410a

b) HERMETICALLY SEALED COMPRESSOR

Capacity : 1.0 TR

(at 7^{o}C evaporator, 54^{o}C condenser temperature, 35^{o}C ambient air temperature)

Type : Reciprocating / Rotary

c) AIR COOLED CONDENSER

Type : Forced convection air cooled

Multi row fin and tube type

d) CONDENSER COOLING FAN

Type : Forced Draft

e) EVAPORATOR : Forced convection multi-row fin and tube type

Fan for Evaporator : Forced draft with variable flow

f) AIR-CONDITIONING DUCT

Material : FRP

Electrical Pre-heater with variac : 1No. with 1 kW

Electrical Re-heater with variac : 1No. with 1 kW

EXPANSION VALVE

THERMOSTATIC EXPANSION VALVE AND CAPILLARY TUBE ARE IN PARALLEL

a) **THERMOSTATIC EXPANSION VALVE** : 1 NO.
Make : Danfoss / Sporlan

Variation in flow rate : by adjusting the TEV screw

Type : Internal equalizer type

Solenoid valve

b) **CAPILLARY TUBE** : 1 NO.

REFRIGERANT FLOW MEASUREMNT : 1 No

Type : Rotameter

Range : 10 to 100 g/s

Accuracy : 1 g/s

HAND SHUT OFF VALVES	:	Before and after each component
FILTER DRIER	:	1 NO.
PRESSURE GAUGES	:	1 NO.
Range	:	0 to 300 psi
Type	:	Bourdon
COMPOUND GAUGES	:	1 NO
Range	:	-30 " Hg to +150 psi
Type	:	Bourdon
HP/LP CUTOUT	:	1 NO.
Range	:	0 to 300 psi
Make and model	:	Danfoss / Sporlan

DIGITAL DUAL WATT METER FOR COMPREESOR AND HEATERS

Range	:	0 to 20 amps
Range	:	5000 watts 1ph
Watt resolution	:	1 watt
Type	:	2 RMS
Isolation	:	Electrically isolated
No. of displays	:	one, 4 digit

Computer connectivity	:	through RS485 port on back panel.
Power	:	230V±20% ac, 50Hz.
Operating temperature	:	0-50°C

DIGITAL TEMPERATURE INDICATOR : 1 set

Temperature range	:	-30 to 199.9 deg.c.
Resolution	:	0.1 deg.c
Type of sensor	:	k-type thermocouple.
No of channels	:	8 channels (2 channel for WBT)
No. of displays	:	one, 4 digit
Power	:	230V±20% ac, 50Hz.
Operating temperature	:	0-50°C

ELECTRONIC DIMMER : 2 NO

Range	:	230 vac
Type	:	variable

AIR FLOW MEASUREENT

Type	:	Orifice plate with inclined tube manometer

3. VAPOR ABSORPTION SYSTEM (ELECTROLUX TYPE)

Objectives of the experiment:

To estimate the cooling capacity and Coefficient of Performance (COP) of the system.

Technical Specification:

The absorption system test-rig consists of an insulated chamber in which the evaporator is housed. The load on the system is provided by an electric heater of variable capacity, placed inside the insulated chamber. The required input to the system at the generator is provided by an electrical heater.

Chamber Volume	:	40 liters (approx.)
Evaporator	:	Natural convection type
Absorber and Condenser	:	Natural convection type
Generator and bubble pump	:	Electrically heated
Material of construction	:	MS

EVAPORATOR WITH HEATER CAPACITY: 60 Watts(maximum)

CHARGE : NH_3 – H_2O - $H_2$with suitable additives for enhancement of absorption and for prevention of corrosion

GENERATOR HEAT SOURCE : ELECTRICAL RESISTANCE HEATER

DIGITAL DUAL WATT INDICATOR FOR POWER CONSUMED BY EVAPORATIOR AND GENERATOR HEATERS: 1 SET

Range	:	0 to 10 amps
Range	:	1000 watts 1 ph
Watt resolution	:	1 watt

Type	:	2 RMS
Isolation	:	Electrically isolated
No. of displays	:	one, 4 digit
Power	:	230V±20% ac, 50Hz.
Operating temperature	:	0-50°C

DIGITAL TEMPERATURE INDICATOR : 1 SET

Temperature range	:	–30 to 199.9°C
Resolution	:	0.1 °C
Type of sensor	:	K-type thermocouples.
No of channels	:	8 channel
No. of displays	:	one, 4 digit
Power	:	230V±20% ac, 50Hz.
Operating temperature	:	0-50°C

Temperatures to be measured and indicated are: 1) Evaporator outlet, 2) Absorber inlet, 3) Absorber outlet, 4) Generator outlet, 5) Condenser inlet,6) Condenser outlet, 7) Evaporator inlet, 8) Temperature of air inside the insulated chamber

4. HEAT TRANSFER IN PIN-FIN APPARATUS

Objectives:

1. To determine the variation of temperature along the length of a pin-fin under forced convection
2. To determine the value of heat transfer coefficient under forced convection
3. To compare the measured values of temperatures with the theoretical values of temperatures along the length of fin
4. To estimate the effectiveness and efficiency of the pin-fin for insulated and convective boundary conditions

Technical Specification

- Fin Material : Copper/Brass
- Fin Size : 15 mm diameter
- Duct Size : 100 x 150 x 500 mm
- Variac : 2 amps
- Digital voltmeter : 0-300 Volts AC
- Digital ammeter : 0-5 Amps AC
- Digital temperature Indicator : 0-300^{o}C (T/K Type)
- Thermocouples with sleeves : T/K type
- Insulation : Asbestos powder
- Heater : and type, Nichrome wire
- Velocity measurement : Orifice and manometer
- Blower : FHP , Centrifugal Blower

5. FLAME PROPAGATION UNIT

The flame propagation is to be designed to study the aspects of flame control in combustion systems using gaseous fuels. The unit should allow the student to vary air/fuel ratios over a wide range and use different types of gaseous fuels.

Objectives:

1. Demonstration of the process of flame lift-off
2. Demonstration of the process of flame light-back
3. To investigate the relationship of flame speed and air/fuel ratio for a variety of slow burning gaseous fuels
4. Enable students to investigate methods of improving flame stability limits

Technical Specification

• Acrylic tube	:	30/40 diameter /1.2 meter length
• Gas/air mixing chamber	:	1 set
• Rotameter for Fuel	:	1 set (e.g. Propane, Butane, Methane, LPG)
• Rotameter for Air	:	1 set
• Fuel cylinder	:	1 set
• Ignition lighter	:	Handheld, manual type, 1 set
• Burner tubes different diameters	:	Interchangeable steel burner tubes of 3 to 4
• Stabilizer cups	:	Brass conical cups to match the burner tubes
• Sensor for speed measuring	:	1 set
• Digital speed indicator	:	1 set
• Blower	:	Centrifugal Blower
• **Safety System**	**:**	Gas control solenoid valve with foot switch. Combined overload cut out and on /off switch Earth leakage circuit breaker

6. WATER COOLED, MULTI-CYLINDER, 4-STROKE, DIESEL ENGINE TEST-RIG

The experimental test-rig should have experimental capabilities such as plotting of torque and power curves, determination of volumetric efficiency and fuel-air ratio, determination of mechanical efficiency, specific fuel consumption, frictional power of engine, to draw heat balance sheet, P-θ diagram, P-V diagram, pressure curve for gas cycle, determination of indicated power output from P-V diagram, Willans line method for a diesel engine, performance test under different loads and speeds

The test-rig should consist of the following:

Test Stand (Control and Load unit):

- Computer Controlled, Control and Load Unit for 4-Cylinder,4-Stroke Diesel Engine with **a maximum power output** of **75 kW**
- Test Stand with wheels for mobility with proper vibration control measures
- Schematic diagram of the complete system on the front panel
- Eddy current brake.
- Force transmission from the engine to the brake unit by means of a coupling (universal joint/leather pads).
- Air intake duct with a calibrated anemometer for measurement of air velocity
- Quietening vessel for intake air.
- Potentiometer for continuous adjustment of braking torque and speed.
- Sensors for measurement and display of Engine Load, Air Temperature, Air intake Quantity, Speed, Fuel Consumption, Oil pressure, Exhaust Gas Temperature, Oil Temperature and Cooling Water Temperature. Thermostat valve between radiator and engine whose temperature range (20- 170^{o}C) can be varied to test effect of cooling water temperature on engine performance.
- The unit should be Computer Controlled i.e. commands for operation of unit should be given from computer.

Water Cooled Four Stroke Four Cylinder Diesel Engine:

- Power output: minimum 20 kW at 3000 rpm and maximum75 kW at 3000 rpm
- Compression ratio (minimum): 20:1
- Desirable Additional Feature: to run on Biodiesel and Hybrid fuels.

Electronic Engine Indicating System:

- Cylinder pressure indication system for internal combustion engine
- Chronological representation of pressure curve against the crank angle in P-θ diagram to determine the maximum pressure and to monitor the ignition point and the pressure increase.
- Representation of pressure curve against the standardized piston capacity in P-V diagram to determine the indicated power output.
- System consisting of measuring amplifier, TDC sensor with suitable software e.g. Windows XP.

7. WATER COOLED, SINGLE-CYLINDER, VARIABLE COMPRESSION RATIO ENGINE TEST-RIG

The experimental test-rig should have experimental capabilities like plotting of torque and power curves, determination of various parameters such as volumetric efficiency, mechanical and thermal efficiency, specific fuel consumption, frictional power of engine under variable compression ratio at various fuel-air ratios, to draw heat balance sheet, P-θ diagram, P-V diagram, pressure curve for gas cycle, determination of indicated power output from P-V diagram, performance test under different load, speeds, compression ratios etc.

Specifications for Test Stand (Control and Load unit):

- Computer Controlled, Control and Load Unit for Single Cylinder VCR (**Variable Compression Ratio**) Engine with a maximum power output of **11 kW**
- Test Stand with wheels for mobility withproper vibration control measures
- Diagram in the front panel with similar distribution to the elements in the real unit
- Asynchronous motor with regenerative feedback unit as the brake for generating the engine load, and can be also used as starter motor.
- Engine started by asynchronous motor
- Force transmission from the engine to the brake unit by means of a coupling (universal joint/leather pads). Proper attachment to adjust braking torque and brake speed.
- 2 separate fuel gauge systems.
- Quietening vessel for intake air.
- Potentiometer for adjustment of braking speed.
- Sensors for measurement and display of Engine Load, Air Temperature, Air intake Quantity, Speed, Fuel Consumption, Oil pressure, Exhaust Gas Temperature, Oil Temperature and Cooling Water Temperature. Thermostat valve between radiator and engine whose temperature range (20- 170^{o}C) can be varied to test effect of cooling water temperature on engine performance.

The unit should be Computer Controlled i.e. commands for operation of unit should be given from computer.

Specifications for the Engine:

- Water cooled type with variable compression ratio
- Power output (minimum) : **7 kW at 3500 rpm**
- Variable Compression ratio : **5:1 to 20:1**
- Fuels supported by engine : Petrol, CNG, LPG and Biogas
- Adjustable Ignition Point
- Creation of different compression ratio using a height adjustable cylinder.

Electronic Engine Indicating System:

- Cylinder pressure indication system for internal combustion engine
- Chronological representation of pressure curve against the crank angle in P-θ diagram to determine the maximum pressure and to monitor the ignition point and the pressure increase.
- Representation of pressure curve against the standardized piston capacity in P-V diagram to determine the indicated power output.
- System consists of measuring amplifier, TDC sensor and software for Windows XP, Windows Vista or Windows7.

8. AIR-COOLED, SINGLE CYLINDER, 4-STROKE, DIESEL ENGINE

The experimental test-rig should have capabilities such as plotting of torque and power curves, determination of volumetric efficiency and fuel-air ratio, determination of mechanical efficiency, specific fuel consumption, frictional power of engine, to draw heat balance sheet, P-θ diagram, P-V diagram, pressure curve for gas cycle, determination of indicated power output from P-V diagram, performance test under different loads and speeds etc.

Test Stand (Control and Load unit):

- Computer Controlled, Control and Load Unit for Four Stroke Diesel Engine with a maximum power output of **7.5kW**.
- Test Stand with wheels for mobilityand proper vibration control measures.
- A schematic diagram of the complete system in the front panel
- Asynchronous motor with regenerative feedback unit as the brake for generating the engine load, and can be also used as starter motor.
- Engine started by asynchronous motor.
- Force transmission from the engine to the brake unit by means of a coupling (universal joint/leather pads). Proper attachment to adjust braking torque and brake speed.
- Quietening vessel for intake air.
- Potentiometer for continuous adjustment of braking torque and speed.
- Vibration damping base plate with damping mass.
- Sensors for measurement and display of Torque, Air Temperature, Air intake Quantity, Pressure, Speed, Fuel Consumption and Temperature, Exhaust Gas Temperature and Cooling Water Temperature.
- The unit should be Computer Controlled i.e. commands for operation of unit should be given from computer.

Air Cooled, Single Cylinder, Four Stroke, Diesel Engine:

• Power output : 5 kW (minimum) and 7.5 kW (maximum) at 3500 rpm

• Compression ratio : 20:1 (minimum)

• Possibility of running the engine on bio-diesel and blends

Electronic Engine Indicating System:

- Cylinder pressure indication system
- Chronological representation of pressure curve against the crank angle in P-θ diagram to determine the maximum pressure and to monitor the ignition point and the pressure increase.
- Representation of pressure curve against the standardized piston capacity in P-V diagram to determine the indicated power output.
- System consists of measuring amplifier, TDC sensor and software for Windows XP, Windows Vista or Windows7.

9. AIR-COOLED, SINGLE CYLINDER, 2-STROKE, PETROL ENGINE

The experimental test-rig should have capabilities such as plotting of torque and power curves, determination of volumetric efficiency and fuel-air ratio, determination of mechanical efficiency, specific fuel consumption, frictional power of engine, to draw heat balance sheet, P-θ diagram, P-V diagram, pressure curve for gas cycle, determination of indicated power output from P-V diagram, performance test under different loads and speeds etc.

Test Stand (Control and Load unit):

- Computer Controlled, Control and Load Unit for Single Cylinder Two Stroke Petrol Engine with a maximum power output of **7.5kW**.
- Test Stand with wheels for mobility and with proper vibration control measures.
- Schematic diagram of the test-rig on the front panel with measurement locations
- Asynchronous motor with regenerative feedback unit as the brake for generating the engine load, and can be also used as starter motor.
- Engine started by asynchronous motor.
- Force transmission from the engine to the brake unit by means of a coupling (universal joint/leather pads). Proper attachment to adjust braking torque and brake speed.
- Quietening vessel for intake air.
- Potentiometer for continuous adjustment of braking torque and speed.
- Vibration damping base plate with damping mass.
- Sensors for measurement and display of Torque, Air Temperature, Air intake Quantity, Pressure, Speed, Fuel Consumption and Temperature, Exhaust Gas Temperature and Cooling Water Temperature.
- The unit should be Computer Controlled i.e. commands for operation of unit should be given from computer.

Air Cooled Single Cylinder Two Stroke Petrol Engine:

- Power output: **4 kW (minimum)** and **7.5 kW (maximum)** at 4500 rpm
- Compression ratio (minimum): **6:1**
- Desirable Additional Features: Possibility of running the engine on LPG and CNG in addition to petrol.

Electronic Engine Indicating System:

- Cylinder pressure indication system for internal combustion engine
- Chronological representation of pressure curve against the crank angle in P-θ diagram to determine the maximum pressure and to monitor the ignition point and the pressure increase.
- Representation of pressure curve against the standardised piston capacity in P-V diagram to determine the indicated power output.
- System consists of measuring amplifier, TDC sensor and software for Windows XP, Windows Vista or Windows7.

10. CUT-SECTIONS

1. Refrigerant compressors (reciprocating – Open and hermetic, rotary, vane type)
2. Refrigerant Expansion valves (TEV and AEV)
3. Compact heat exchangers (evaporator, condenser, radiator)
4. 2-stroke, single cylinder, IC engine (SI and CI)
5. 4-stroke, single cylinder, SI engine
6. Fuel injector
7. Carburettor
8. Fuel pump

11. Exhaust gas (Flue gas) analyzer

The analyzer should measure CO_2, CO, NOX, O_2, SO_2, H_2S, C_xH_y with 99.999% accuracy. Operating temperature should be between 20 to 60^oC. Memory: min.3, 00,000 values. Power supply: 80 to 270 V (or) with suitable charging adopter. All sensors should have min. 3 years warranty.
It should have user electable dilution factor ranging from 1 to 5.
It should have proper software facility to take the use of stored values in excel sheet format (.xlsx / compatible). Should have control unit and analog output unit. Standard hose pipe connection (10m min.). Response time should be less than 10 sec. It should have proper calibrating kit.Warm-up time: less than 1 minute.

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

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
Sl. No	**Name of the Experimental Test-rig**	Qty				
1	VAPOR COMPRESSION REFRIGERATION SYSTEM	3 sets				
2	SUMMER AIR-CONDITIONING SYSTEM	3 sets				
3	VAPOR ABSORPTION SYSTEM (ELECTROLUX TYPE)	3 sets				
4	HEAT TRANSFER IN PIN-FIN APPARATUS	3 sets				
5	FLAME PROPAGATION UNIT	3 sets				
6	WATER COOLED, MULTI-CYLINDER, 4-STROKE, DIESEL ENGINE TEST-RIG	3 sets				
7	WATER COOLED, SINGLE-CYLINDER, VARIABLE COMPRESSION RATIO ENGINE TEST-RIG	3 sets				
8	AIR-COOLED, SINGLE CYLINDER, 4-STROKE, DIESEL ENGINE	3 sets				
9	AIR-COOLED, SINGLE CYLINDER, 2-STROKE, PETROL ENGINE	3 sets				
10	CUT-SECTIONS OF COMPONENTS	3 sets				
11	EXHAUST GAS ANALYSER	3 sets				

(Signature of Bidder)

Note: Please quote for imported equipments in Foreign Currency only. The exchange rate as on date of opening of the price bid will be applied and the comparative statement will be drawn in Indian Rupees. Wherever quoted in Indian Rupees such price will be considered for comparison

ANNEXURE-1

RGUKT. Ref. No: ***RGUKT/Proc/Mech.Engg/ATDL/T13/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……of ……..having 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 of ……..for 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/Mech.Engg/ATDL/T13/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 the ……..day 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 90 days for indigenous as well as imported equipments also from the date of award of the contract.

Payment terms	
On delivery at user site	Payment for goods and services shall be made in Indian rupees as follows. 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	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 of10% 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.,

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

o 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.

o 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 made 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. Vendor's common seal: Place Date:	For. Rajiv Gandhi University of Knowledge Technologies RGUKT common seal: 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,
IIIT-H Campuses, Gachibowli,
Hyderabad-500032.

Sir,

Having examined the bidding documents and amendments there on, we the undersigned, offer to supply and deliver the Applied Thermodynamics Lab I & II (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.

SL. 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 CA's 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, wherever applicable	
14	List of machinery/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 technical bid documents should be attested by the Gazzetted 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.