OFFICE OF THE PRINCIPAL GOVT I.T.I. BASTAR
DISTT. - BASTAR, CHHATTISGARH

Phone No. 07782-262510, E-mail – itibastar@rediffmail.com

TENDER NO.–BASTAR/WB/VTIP/JANUARY2014/**2914**/BASTAR,DATED- 03-01-2014

NOTICE INVITING RE-TENDER

Principal, **ITI BASTAR**, Chhattisgarh invites sealed tender from eligible bidders (Manufacturers, or their authorized dealer) for procurement of various Packages of Tools, Equipments & Machinery for Center of Excellence related to **"Industrial Automation "** Sector under World Bank assisted Vocational Training Improvement Project (VTIP) in Shopping Mode.

The tender form (complete set of bidding documents along with the packages including details of Items with quantity for purchase) is available on the website **www.cgstate.gov.in or www.itibastar.com** from **03 JANUARY 2014**. A complete set of bidding documents may be downloaded **free of cost** by any interested eligible bidder

The sealed tender should reach the Office of the Principal, ITI **BASTAR**, Chhattisgarh on or before **04 FEBRUARY 2014** by 13.00 hours and will be opened on the same day at 14.00 hours. Any bid received after the deadline for submission of bids as prescribed above will be rejected and returned to the Bidder. The undersigned has all the rights pertaining to the tender.

PRINCIPAL
GOVT. I.T.I. BASTAR
CHHATTISGARH

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TENDER NO.–BASTAR/WB/VTIP/JANUARY 2013/ **2914**/BASTAR,DATED- 03-01-2014

World Bank Assisted Vocational Training Improvement Project

TERMS & CONDITIONS OF THE RE-TENDER

Tender documents/Qualification requirements should be submitted in **Main envelope** as given below:

1. On the top of Main envelop mention Tender No., Due Date, all package nos. & names for which Bid are submitted.
2. Following documents should be kept inside the envelope :
    1. Covering letter for submission of Bid which should indicate -
        - Index for all the submitted documents for the tender
        - All particulars of Bidders viz address, phone No., e-mail, name of the authorized person(s), TIN/ TAN/ Service Tax No. etc. for correspondence.
        - Package Nos. & name for which Bid is submitted.
    2. Completely filled Form - "A" with signature & seal of authorized person which includes Earnest Money/ Bid security details - @ 3% of total tendered value.**Tender received without form "A" duly signed (As token of acceptance of tender conditions by the tenderer) will not be accepted.**
    3. Demand Draft/ Bank Guarantee (as given in the proforma Annexure-III) for earnest money/ bid security.
    4. All the pages of **Terms & Conditions of Tender** duly signed & stamped by the tenderer in token of his acceptance of tender conditions along with other documents.
    5. Valid certificates related to TIN / TAN / Service Tax No. etc. issued by competent Govt. authority pertaining to tender.
    6. Undertaking for "After Sales Services" on letter head of bidder.
    7. **Affidavit in prescribed format as given in Annexure-V on non judicial stamp paper of Rs. 50/- certified by Notary.**
    8. Manufacturer's Company Profile showing its product range, turn over, web-address and certifications like ISO/ ISI etc. along with the documentary proof of such certificates if company/ products bear such certificate.
    9. All relevant particulars, illustrative catalogue/ broachers etc. which should indicate the products technical specifications for all packages which is submitted in the bid.
    10. Filled Manufacturer's Authorization Form as given in SECTION XII (Annexure-VI) for all the quoted items.
    11. Package wise Commercial Bid in prescribed format (i.e. Annexure-I) should be submitted (separately for each package) in individual envelope along with the soft copy in CD (MS-Excel).
    12. On the top of each envelope of Commercial bid, bidder should clearly mention Tender No., Due Date, Package No. and Package Name with seal & sign of bidder.
3. Complete tender document must be duly singed, stamped, paged & indexed by the bidder. **Unsigned or unpaged bids shall be straightway rejected.**
4. The bid would be evaluated separately for each item.
5. Either a manufacturer or their authorized dealer can bid for a package(s). For each of the quoted items, appropriate documentary evidence for being a Manufacturer or their authorized dealer (Manufacturer's Authorization Form given in SECTION XII as Annexure-VI) must be

submitted necessarily. In absence of above the bid will be treated non-responsive & likely may be rejected.

6. If bided items are manufactured out of India then manufacturer's authorized distributor/agency for India may specially authorize a dealer who may participate in this tender. The relevant certificates in proof of such Authorizations and Manufacturing must be submitted.

7. The bid should be accompanied by Earnest Money/ bid security of @ 3% of total tendered value (for all packages) as part of the bid, in the form of Bank Draft/ Bank Guarantee of Nationalized Bank. Bank Draft should be in favour of Principal, ITI **BASTAR** payable at **BASTAR**, Chhattisgarh. If the bidder deposits earnest money/ bid security in the form of Bank Guarantee, he/she shall furnish the same to the Principal, ITI **BASTAR** for 3% of total tendered value through a bank guarantee by a nationalized bank in the prescribed proforma as Annexure-III. Earnest Money submitted in any other form will not be accepted and the tender will be rejected. Unsuccessful bidder's earnest money will be discharged/ returned as promptly as possible.

8. The bidder should submit the Manufacturer's Make/ Brand name being use for marketing and registration no. of Commercial Tax Department.

9. Prices shall be quoted in Indian Rupees only. All quoted rates should be for **new and unused** items unless and otherwise specified so.

10. The Technical specification of the Items given in the packages are as per the requirements of the curriculum of the related sectors/trades. Bidder may give equivalent / superior specification as manufactured along with the Technical details / catalogue / brochure etc.

11. Complete Tender Documents will be opened on the prescribed date and time in the presence of Bidders / representatives who choose to attend. The Bidders / representatives who are present shall sign a register evidencing their attendance.

12. The rates quoted by the bidder must be inclusive of all the charges (like – transportation, installation charges, delivery charges, inspection charges, training charges, charges for services, excise duty, customs duty etc.) except VAT. The VAT should be mentioned separately.

13. The tender matter including prices should be typed neatly; corrections/ overtyping in prices will not be accepted. However if correction/ overtyping is there, it should be attested by the tenderer with signature, date and their seal. Hand written and xerox tender will not be accepted.

14. The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.

15. Bids shall remain valid for 45 days after the deadline for submission of bids prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

16. Tenderer should give all relevant particulars about every item, such as maker's name Country of Manufacture and Specifications and Price etc., "Specifications as given in catalogue" quoted in tender by the tenderer will not be accepted. Full specification must be written in tender positively and should also be supported by technical literature (Catalogue/ Broachers). Purchase Committee's approval/ decision will be final and binding.

17. Vague expression such as "complete with standard accessories" or "as per your specification" will not be accepted. The tenderers must specifically indicate all specification of the items and should mention clearly what item will be supplied under "accessories" with the Equipment/ Machinery in price schedule enclosed as Annexure-I. Any ambiguity or vagueness in tender for item concerned will be liable for rejection.

18. Makers stickers pasted on equipments/tools will not be accepted.

19. Catalogues/ brochures must be clear, specific and should reflect all the essential specifications of the products/ items, otherwise it will not be considered for comparison. It should be clearly indexed to reflect which item is related to which Catalogues/ brochures.

20. Supplies for any particular item in each package of the bid should be from one manufacturer only. Bids from agents offering supplies from different manufacturers, for the same item of the package in the bid, will be treated as rejected.

21. Contracts will be awarded only for those items which have minimum 3 valid rates.

22. The bids will be examined to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are in order.

23. The decision of the Tender Committee will be final in the scrutiny of successful bidders.

24. The tenderer will have to submit samples on demand before the technical team at the purchaser end, in the prescribed time limit. In case the samples are not produced in the prescribed time it shall be open to the undersigned to forfeit Earnest Money Deposited by the tenderers. If the samples sent by the party are approved the same will be adjusted in regular supply and in the case of rejection, they will be returned back to the party at his cost.

25. Since this procurement is financed by a World Bank loan/ credit, bidders/ suppliers/ contractors are required to permit the bank to inspect their accounts and records and other documents related to the bid submission and contract performance and to have them audited by auditors appointed by the Bank.

26. The fact that the tenderer has signed the form "A" will mean that the tenderer has completely accepted Terms & Conditions of the tender and that the tenderer agrees to abide by these Terms & Conditions of the tender. No deviation from Terms & Conditions of the tender will be accepted under any circumstances. The Terms & Conditions of the tender and clause usually printed on the parties tenders or bills will not be binding on this department.

27. The contents of the form "A" should not be changed or amended otherwise will not be acceptable by this office.

28. The Principal, ITI **BASTAR** Chhattisgarh reserves the right at the time of Contract award to increase or decrease the quantity of goods originally specified in the Packages without any change in unit price or other terms and conditions.

29. **Contracts for procurement of packages will be awarded as per the priority and availability of budget.** Suppliers has to deliver and complete the task of installation strictly as per the specification of ordered items within stipulated time otherwise above contract may be treated as canceled without any prior notice.

30. **Before executing the awarded contract** the Supplier shall furnish Performance Security to the The Principal, ITI **BASTAR** Chhattisgarh for an **amount of 5%** of the contract value through a Bank Guarantee by a nationalized bank, in the prescribed proforma as Annexure-IV, valid upto 60 days after the date of completion of performance obligations including warranty obligations. If the desired Performance Security is not deposited by the tenderer in the specific period, the Earnest Money already deposited with the tender shall be forfeited. In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected/ replaced material shall be extended to a further period of 12 months and the Performance Bank Guarantee for proportionate value shall be extended 60 days over and above the extended warranty period. In the event of any contract amendment, the Supplier shall, within 21 days of receipt of such amendment, furnish the amendment to the Performance Security, rendering the same valid for the duration of the Contract, as amended for 60 days after the completion of performance obligations including warranty obligations.

31. If the Supplier fails to deliver any or all of the Goods or to perform the services within the stipulated delivery period(s) specified in the Contract, the Principal, ITI **BASTAR** Chhattisgarh shall, without prejudice to its other remedies under the Contract, forfeit the Bid Security and the order is liable to cancel.

32. If the supplier/ dealer fails to supply the items as per the specifications, items will not be received by the consignee and supplier/ dealer has to return it back on his/ her own cost. The supplier / dealer may supply the items of higher specifications (due to manufacturing obligations) if accepted by consignee after examination and testing.

33. The one time extension in the delivery period may be granted at the discretion of the undersigned. The liquidated damage at a rate of 2% per month subject to a ceiling of 10% of the contract price of the full cost of the tool/equipment/machine is liable to be charged for the extension of the delivery period. Once the maximum is reached, the Purchaser may consider termination of the Contract. Equipment received after the delivery period or dispatched after the delivery period mentioned in the order will also be subjected to this liquidated damage. Power to extend delivery period would remain reserved with Principal, ITI **BASTAR** Chhattisgarh.

34. Loading/ Unloading charges shall be borne by the supplier.

35. The undersigned may get, the items supplied by the successful tenderer, inspected on receipt of the same by such person or persons he deems fit and to reject such of these items as in his opinion do not come up to the specification. The decision of the under signed will be final in such cases. The rejected items will be returned on the tenderer's cost.

36. Warrantee/Guarantee should be for a period of 1 year minimum after delivery for the goods and its accessories. An undertaking shall be given by the bidder for "After Sales Services" (in case of authorized supplier/ dealer it should be given by the Manufacturer).

37. All the equipments shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit/ handling and storage at site till the time of installation/ commissioning. While packing all the materials, the limitations from the point of view of availability of railway wagon sizes, in India should be taken into account. The contractor shall be responsible for any loss or damage during transportation, handling and storage due to improper packing.

38. If any Machines/Equipments require training for users, then supplier/ dealer has to arrange such training program at the destinations free of cost. Installation and working trial is to be given at site at the expenses of supplier.

39. 100% payment will be released after the safe receipt of goods, as per the specifications given in purchase order & and after ensuring successful installation, commissioning and performance of supplied items etc.

40. It must be noted that normally all correspondence and transactions will be made only with the parties whose tenders have been accepted and not with anybody else.

41. The undersigned reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time without assigning any reason prior to contract award, without thereby incurring any liability to the affected bidder or bidders.

42. At any time prior to the deadline for submission of bids, the Purchaser may modify the bidding documents by amendment. All prospective bidders who have purchased the bidding documents will be notified of the amendment by uploading in the website **www.cg.gov.in** or by E-mail or by fax and will be binding on them.

43. If any document given by the bidder is found fake/manipulated, then the entire EMD deposited by the bidder in the tender will be forfeited without assigning any reason and such bidder will not be entitled for future biddings.

44. Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

The decision of the "Tender Committee" will be final & binding to all the bidders. Any dispute arising out of this tender or supply of any other matter will fall under the civil jurisdiction of Chhattisgarh High Court only.

Principal,
Govt. I.T.I. BASTAR
Distt. BASTAR (C.G.)

ANNEXURE-I

Note:- Give Bid Price Item-wise in the following Proforma only. Any deviation will not be accepted.

PRICE SCHEDULE

Package No. ....., Package Name. .....

Name of Bidder .....

(Amount in Rs)

Item Serial No.	Item Code	Specifications of items, which bidder offers	Name of accessories with specifications (if any)	Make/ Brand of Item	Manufacturer's Name	Catalogue / Brochure Page No. (as indexed by you)	Quantity of Item as per tender With unit	Cost per unit (Inclusive of all Charges) except VAT	VAT	Total value item wise (col. 9 + col. 10)	Total Value in Rs. (col. 8 x col. 11)
1	2	3	4	5	6	7	8	9	10	11	12
Total package Value (in words)											

Note:-

a. The bidding prices shall be for F.O.R. Destination.

b. Rates should be inclusive of all charges (such as charges for Inspection/ Demonstration/ Installation/ Commissioning/ Transportation/ Excise / Custom / Services charges etc. except VAT. VAT should be mentioned separately.

c. Conditional rates will not be accepted.

d. Comparison will be done item wise on the basis of total value as mentioned in column 11.

e. Rates will be finalized for purchase on the basis of individual items having 03 valid rates.

f. Specifications of the items which bidder offers as per the catalogue/ brochure/ Technical details etc. will be considered for comparison and selection. Incomplete details will not be considered for comparison.

g. Price Schedule given in other form will not be accepted and bid will be rejected.

ANNEXURE- II

FORM - A

(To be signed and returned along with the tender)

I/We (Full Name) .....

Address .....

.....

have read the Terms and Conditions of the tender for the supply of various stores as per your tender notice for supply of Package of _____ for INDUSTRIAL TRAINING INSTITUTES ..... of Chhattisgarh under World Bank assisted VTIP Scheme in Shopping Mode due on _____ and I/we fully accept the Terms and Conditions of the Bid supplied to me / us with the Bidding Documents.

I/We also undertake to permit the World Bank to inspect our accounts and records and other documents related to the bid submission and contract performance and to have them audited by auditors appointed by the Bank.

It is further noted that if any manipulation is found at any stage, the tender/ Contract / Supply order shall be rejected and the Principal, ITI ....., Chhattisgarh may take any action against me/us, as she/he deems appropriate.

Details of Earnest Money/bid security in the form of DD/BG (@ 03% of the total tendered value for the package(s) for which bid is submitted) :

(a) DD/BG no. ----------

(b) Value Rs. ----------

(c) Name of Bank ----------

Date: .....

Signature
(Name & full Address of the firm)

ANNEXURE- III

EARNEST MONEY / BID SECURITY FORM

To: **The Principal, Industrial Training Institute**
BASTAR, Distt.- BASTAR (Chhattisgarh)

WHEREAS ..... (Name of Supplier) hereinafter called "the Bidder" has undertaken, in pursuance of Tender No. ..... dated ..... 20..... to bid in the said tender.

AND WHEREAS it has been stipulated by you in the said Tender notification that the Supplier shall furnish you with a Bank Guarantee by a nationalized bank for the sum specified therein as Earnest Money/ Bid Security for compliance with the Bidders obligations in accordance with the Tender terms and conditions.

AND WHEREAS we have agreed to give the Bidder a Guarantee:
THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Bidder, up to a total of ..... (Amount of the Guarantee in Words and Figures) and we undertake to pay you, upon your first written demand declaring the Bidder to be in default under the Terms and Conditions and without cavil or argument, any sum or sums within the limit of ..... (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.....20.....

Signature and Seal of Guarantors
.....
.....
.....
Date.....20.....
Address:.....
.....
.....

.....
(Signature of the Bank)

Note : The bank guarantee (submitted by Indian Bidder) should be executed on stamp paper in accordance with stamp Act. The stamp paper should be in the name of executing bank.

ANNEXURE- IV

PERFORMANCE SECURITY FORM

To. The Principal, Industrial Training Institute
BASTAR, Distt.- BASTAR (Chhattisgarh)

WHEREAS ..... (Name of Supplier) hereinafter called "the Supplier" has undertaken , in pursuance of Contract (Notification of Award) No. ..... dated ..... 20..... to supply..... (Description of Goods and Services) hereinafter called "the Contract".

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier 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.

AND WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of ..... (Amount of the Guarantee in Words and Figures) and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limit of ..... (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.....20.....

Signature and Seal of Guarantors

.....

.....

.....

Date.....20.....

Address:.....

.....

.....

Note : The Bank Guarantee [submitted by Indian Supplier] should be executed on stamp paper in accordance with stamp paper act. The stamp paper should be in the name of executing bank.

ANNEXURE- V

On Non Judicial Stamp Paper of Rs. 50/-

निविदाकर्ता द्वारा Bid के साथ दिये जाने वाला
शपथ–पत्र

निविदाकर्ता फर्म मेसर्स ..... की ओर से मुझे/हमें अधिकृत किया गया है और मैं/हम निम्नलिखित कथन शपथपूर्वक कहता हूँ/कहते हैं कि :–

1. मैंने/हमने निविदा की सारी शर्तें ध्यानपूर्वक पढ़ी हैं और उनसे सहमत हैं तथा उन्हें मानने के लिये वचनबद्ध हैं।
2. मेरे/हमारे द्वारा संलग्न किये गये सभी दस्तावेज सही है और उनमें किसी प्रकार की कांट–छांट नहीं किया गया है एवं गलत जानकारी नहीं दी गई है।
3. मेरे/हमारे द्वारा कामर्शियल बिड में सामग्रियों के लिये जो स्पेशिफिकेशन दिया गया है और उनके सपोर्ट में जो भी संबंधित दस्तावेज, कैटलॉग/ब्रोशर्स आदि संलग्न किये गये हैं उनमें लिखा विवरण निर्माता द्वारा जारी किया गया है एवं मूल रूप में हैं और उनमें कोई फेरबदल या कांट–छांट नहीं किया गया है।
4. मेरे/हमारे द्वारा निर्माता से मुझे/हमें जारी आथॉराइजेशन प्रमाण पत्र जो कि बिड के साथ संलग्न किये गये हैं वे सही एवं मूल रूप में हैं और उनमें कोई फेरबदल नहीं किया गया है।
5. मैं/हम दिये गये कयादेशानुसार सामग्रियों को निर्धारित समय सीमा में स्पेशिफिकेशन के अनुसार सप्लाई करने के लिये बाध्य हैं। देर होने या सामग्रियों के स्पेशिफिकेशन में अन्तर होने पर मुझे/हमें दिये गये कयादेश को निरस्त किया जा सकता है एवं शासन को होने वाले नुकसान की भरपाई मेरे/हमारे द्वारा की जायेगी।
6. मेरे/हमारे द्वारा दी गई जानकारी असत्य पाये जाने पर मुझे/हमें एवं हमारी फर्म को निविदा में भाग लेने से वंचित किया जा सकता है।

दिनांक .....

हस्ताक्षर : .....

नाम : .....

धारित पद : .....

फर्म का नाम : .....
(सील सहित)

ANNEXURE- VI

SECTION XII

MANUFACTURERS' AUTHORIZATION FORM*

No. _____ Dated

To

Principal / Head of the Institution
Government ITIs
Under Directorate of Employment & Training
Chhattisgarh

Dear Sir:

Tender no _____ Dated _____

We _____ who are established and reputable manufacturers of *(name and description of goods offered)* having factories at _____ (*address of factory)* do hereby authorize M/s _____ *(Name and address of Agent)* to submit a bid, and sign the contract with you for the goods manufactured by us against the above IFB.

No company or firm or individual other than M/s _____ are authorized to bid, and conclude the contract for the above goods manufactured by us, against this specific Tender. *(This para should be deleted in simple items where manufacturers sell the product through different stockists.)*

Yours faithfully,

(Name)

(Name of manufacturers)

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

* Modify this format suitably in case where manufacturer's warranty and guarantee are not applicable for the items for which bids are invited.

Office of The Principal Industrial Training Institute
Bastar

Details of Proposed Procurement under Shopping Mode

Sl. No.	Package No.	Package Name	Remarks
1	2	Hydraulic Items	
2	4	Hydraulic & Pnumatic Items	
3	20	Machinary Itam	
4	23	MACHINERY TOOLS	
5	24	Gauges, Sine bar, Combination Set	
6	25	Measuring Instruments, Micrometer, Rule steel, Sprit level metal, Linear Scale	
7	26	Hammer & Chisel, Stone oil, Oil can & Blow Lamp	
8	27	Scriber, Center punch and Try square, Scrapper flat , Chisel cold flat	
9	30	Spanner Item, Pipe wrench, Jack planner, Adjustable spanne, Wheel dresser	
10	32	Pnumatic hydraulic simulation software videos/textbooks	
11	33	Mobile labaratory workbench for pnumatics & Hydraulics	
12	34	Reciprocaling air compressor single stage.	
13	35	Oil Testing Kit (FOR MOTORISED OIL TEDSTING KITS)	
14	36	Meta rectifier, Variable Auto transformer, OCB with Panel, MCB, Megger Analog Type	
15	37	Photo taclhometer, Pressure Regulator	
16	38	Guages	
17	39	Temperature Controllor, Engery meter	
18	40+42	Soldering and Desoldering Iron, Neon Lamp Tester, Tweezer, Ele Knife, Synchros	
19	41	Process Control Trainer	
20	49	Meggar Analog Type	
21	50	Earth Tester	
22	51	PLIERS & CREW DRIVERS	
23	52	Mechanical Item,Pincer, Crimping Tools and measuring Tape,Safety belt Item, Bar Magnet Complete set, Leader (Stair),	

Principal
Industrial training Institute
Bastar Chhattisgarh

INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 2
Hydraulic Items

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Total
1	IABH 11	Oil hydraulics pump for dismantling and assembling practice bench -Gear pump, swash plate pump, vane pump	1	1
2	IABH 9	Oil-hydraulic –transparent working model with drive unit kit operating pressure of 10 bar. The Hydraulic Trainer Kit shall be capable of being used to demonstrate the design, construction and application of Hydraulic components and circuits. The kit should be designed to satisfy the following objectives : The kit should be powder coated on mobile. Trolley with wheels with component storage box arrangement . Design and function of a Hydraulic System . Function of Valves . Symbols & Basic Circuit Diagrams on practical applications . The Trainer kit should be transparent All Hydraulic connections shall be with quick connector, safety clamping and quick plug in locking system for profile panels (unless specified against individual item). The couplings should be leak proof, which is self-sealing when decoupled and when coupled, should ensure a tight hydraulic connection, During the coupling process only the face of the face of the coupling should be coated with oil Industrial components shall be used in the kit so that the students get hands on practical training in using Industrial components. Operating Pressure should be kept at 10 bar for safely of the student. The components/equipments should be mounted on an ergonomically designed mobile metal trolley with drip tray. The power pack is to be mounted at the bottom. The components should be easily mounted on the working area. "Quick Release couplings" are used on the components & hoses for fast & easy connections. All the components are fitted with. " Quick Adapters" & The hoses are fitted with quick couplers. The Hydraulic Trainer Kit consists of : Hydraulic Power - Pack : • Pump 3LPM • Pressure 10 bar • Motor 1/2 HP 3 Q foot/flange motor • Oil Tank 20 1itre capacity (oil to be provided) • Isolating Plate • Suction Strainer Filter • Oil Level Indicator • Distributor Block • Magnetic Drain Plug • Pressure Gauge • Pressure Relief Valve Components : • Single Acting Cylinder 40 mm ϕ x 75 mm stroke : 01 Nos • Double Acting Cylinder 40 mm ϕ x 100 mm stroke : 01 Nos • 4/2 Directional Control Valve (Spring Return) lever actuated : 02 Nos • 4/3 Directional Control Valve Lever actuated : 01 Nos • Flow Control Valve : 02 Nos • Check Valve : 01 Nos • Needle Valve : 01 Nos • PO Check Valve : 01 Nos	1	1

		• PO Check Valve : 01 Nos • Pressure Relief Valve: 01 Nos • Sequence Valve: 01 Nos •3/2 way D.C. Valve spring Return lever actuated: 01 Nos • Diaphragm Accumulator: 01 Nos •Pressure Reducing Valve: 01 Nos •Manifold: 02 Nos a. Pressure Line b. Return Line •Pressure Gauge φ 100mm: 01 Nos •Branch Tee : 02 Nos •Measuring Flask (2Litres) with drain arrangement: 01 Nos •Loading weight (15Kg approx): 01 Nos •Pulley arrangement (suitable t olaod) : 01 Nos •Hydraulic Hoses with Quick Couplers: 10 Nos •Accessories:& 1- Detailed Instruction Manual: 01 Nos A sotfware with animations should be provided. The software should cover hydraulic concepts from very basic to advanced. It should have full electrotechnical fun ctionality. It should have the facility of drawing and simulationg hydraulic and electro-hydraulic components. it should have pre drawn basic circuits of hydraulic and electro-hydraulic. it should have the facility of saving the circuits and using again later if necessary. it should include the complete manual in pdf format. the software should be installed without a dongle.		
3	IABH10	Working model of hydraulic press	1	1

4	IABH13	Hydraulic motor – gear, vane type motor – gear type The set up Consists of : a. Gear type Hydraulic Motor developing Torque 1 Kgm. at 20 Kg/Cm2 driven Hydraulic pressure by Hydraulic Power Pack. b. Hydraulic Power Pack : Discharge : 10 LPM. Pressure : 40 Kg/cm2 Gear Pump Coupled to 1 HP 1440 RPM. c. Rope & Weight arrangement provided to lift the weights. d. M.S. Oil Reservoir of size 0.5m x0.5m x 0.5m. Made from 10 gauge M.S. sheet. Necessary pipe line & fittings will be provided. e. Pressure gauge. Vaccum gauge. Switch. Starter, Stop clock, Energy meter, gate valve will provided. f. 1 Copy of Instruction Manual with operating procedure & maintenance details **Motor- vane type** The set up Consists of : a. Vane type Hydraulic Motor developing Torque 1.2 Kgm. at 20 Kg/Cm2 driven Hydraulic pressure by Hydraulic Power Pack. b. Hydraulic Power Pank : Discharge : 10 LPM. Pressure : 40 Kg./cm2 Gear Pump Coupled to 1 HP 1440 RPM. c. Rope & Weight arrangement provided to lift the weights. d. M.S. Oil Reservoir of size 1.5m x 0.5m x0.5m made from 10 gauge M.S. sheet. Necessary pipe line & fittings will be proviede. e. Pressure gauge, Vaccum gauge, Switch , Starter, Stop clock , Energy meter, gate valve will proviede. f. 1 Copy of Instruction Manual with Operating Procedure & maintenance details.	1	1

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 4
Hydraulic & Pnumatic Items

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Total
			IAB	
1	IABH-16	Pneumatic/ Hydraulic seals and filters- Seals for the following Pneumatic Components; 1. Single Acting Cylinder. 2. Double Acting Cylinder 3. 3/2 way Hand Lever Valve 4. 3/2 way Palm operted Valve 5. 3/2 way Roller Lever Operated Valve 6. 3/2 way Double Pilot Valve 7. 5/2 way Hand Lever valve 8. 5/2 way Single Pilot Spring Return Valve 9. 5/2 way Roller Valve 10. Dual Pressure AND Valve Following filters for Pneumatic: 1. Single Acting Cylinder 2. Double Acting Cylinder 3. 4/2 DC Valve 4. 4/3 DC Vale Following filters for Hydraulic 1. Pressure line filter mesh type 2. Return line filter with enclosure 3. High pressure filter (Sintered Bronze)	2	**2**
2	IABH-17	Magnetic Pneumatic/Hydraulic symbols case Symbols of various hydrauic and pneumatic componesnts should be provided on an acrylic plate of size 5"x3" approx. The symbol should be mirror image printed n the acrylic and should be multi-coloured. The symbols of the following components of pneumatic & hydraulic should be provieded. Pneumatic Air filter, Regulator * Lubricator Unit (FRL Unit) Pressure Manifold Manifold with 3/2 Way Hand Slide Valve Single Acting Cylinder Double Acting Cylinder Double Acting Cylinder (with Reed Switch) 2/2 Direct Acting Solenoid Valve 3/2Way Disc Rotary Valve 3/2 Way Hand Lever Valve 3/2 Way Mushroom Batton Operated Spring Return Valve 3/2 Way Palm Operated Valve 3/2 Way Pilot Operated Valve 3/2 Way Roller Lever Operated Valve 5/2 Way Double Pilot Valve 5/2 Way Double Solenoid Valve 5/2 Way Foot Operated Valve 5/2 Way Hand Lever Valve 5/2 Way Push Button Valve 5/2 Way Single Solenoid Valve 5/2 Way Single Pilot Spring Return Valve 5/2 Way Roller Valve 5/3 Way Hand Lever Valve Dual Pressure AND Valve "OR" Function Shuttle Valve Pneumatic Operated Time Delay Valve Pressure Switch	1	**1**

3	MBH-5	**Pneumatics cut-away models case** The cut away models for the following components should be provided with their different parts in different colours for easy identification for the various parts of that component. Cut sections of the following components should be provided **Pneumatics** Air filter Regulator & Lubricator Unit (FRL Unit) : 01 Nos. Pressure Manifold with Four ON/OFF Valves for Multiple connections. :01 No. Single Acting Cylinder : 01 No. Double Acting Cylinder : 01 No. 3/2 Way Pilot Operated Valve : 01 No. 3/2 Way Palm Operated Valve : 01 No. 3/2 Way Roller Lever Valve : 01 No. 5/2 Way Double Pilot Valve : 01 No. 5/2 Way Double Solenoid Valve : 01 No. 5/2 Way Push Button Valve : 01 No. 5/2 Way Single Pilot spring Return Valve : 01 No. 5/2 Way Roller Valve : 01 No. 5/3 Way Hand Lever Valve : 01 No. Flow Control Valve : 01 No. Quick Exhaust Valve: 01 No. Hydraulics Single Acting Cylinder 40 mm f x 75 mm Stroke : 01 No. Double Acting Cylinder 40 mm f x100 mm Stroke : 01 No. 4/2 Way Directional Control Valve (Spring Return) 01 No. 4/3 Way Directional Control Valve : 01 No. Check Valve 01 No. Flow Control Valve : 01 No. Manifold PO Check Valve : 01 No. Pressure Relief Valve : 01 No.	1	1

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 20
Machinary Itam

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	Total
1	IABW - 13	Portable Hand Drill Electric (0 to 6) mm upto 6 mm capocity	2		2
2	IABW - 14	Drill Brace Hand (0 to 12)mm	4		4
3	IAAME - 101	Grinding machine (General purpose) D.E. pedestal with 20 cm dia. Wheels rough and smooth with twist drill grinding attachment. D.E. Grinder Pedestal with two motorized 20 cm Technical spcification C.I. casting of high grade quality, Use of best quality stamping and cast rotor. Motor winding are specially insulated and ensure smooth running. machine provieded with rotary switch. Constructions of the machines are made sturdy and robust to offer vibration free performance. Pedestal heavy fabricated suitable stand for D.E. Grinder 0.75 HP & 3 phase, 2800 RPM with 200 mm x 25 mm x 31.75 mm bore		1	1

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 23
MACHINERY/TOOLS,Drilling machine pillar sensititve , Drill chuck

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
1	IABW- 71	Bench drilling machine 12mm capacity with standard accessories	1		1
2	IABW-72	Bench grinder double ended motorised with 200 mm dia. Wheel, Technical specification : C.I casting of high grade quality, Use of best quality stamping and cast rotor, Motor winding are specially insulated and ensure smooth running, Each machine provided with rotary switch, Constructions of the machines are made sturdy and robust to offer vibration free performance, 0.75 HP & 3 phase motor, 2800 RPM (Approx),	1		1
3	IAAM-99	Drilling machine pillar sensititve 0-20mm cap with swivel table motorised with chuck & key		1	1
4	IAAM-100	Forge portable hand blower 38cm to 45cm		1	1
5	IAAM-89	Machines vice 160 mm		2	2
6	IABW-52, IAAM-77	Drill chuck 12 mm	4	1	5
7	IABW-5	Marking table 90*90*90 cm	4		4
8	IAAM-5	Marking table 91*91*122 cm		4	4

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 24

Gauges, Sine bar, Combination Set

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABW-27 IAAM-31	Feeler gauge 10 blades Metric	4	1	5
2	IABW-51 IAAM-75	Wire gauge matric stand	4	4	8
3	IAAM-102	Slip gauge as Johnson metric		1	1
4	IABW-61	Gauge imperial sheet		4	4
5	IAAM-104	Gauge snap go and not go 25-50 mm by 5 mm		1	1
6	IAAM-105	Telescopic gauge Set of 6 Upto 150 mm		1	1
7	IABW-50 IAAM-74	Screw pitch gauge with worth and metric	4	1	5
8	IAAELE-104	Gauge wire Imperial		2	2
9	IABELE-34	Wiregauge (SWG)	1		1
10	IAAM-107	Sine bar 125mm		1	1
11	IAAM-100	sine bar 250mm		1	1
12	IAAM-65	Combination Set 30 cm		2	2

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 25

Measuring Instruments, Micrometer, Rule steel, Sprit level metal, Linear Scale

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABW-44 IAAM-67	Micromeer 25-50mm outside	4	3	7
2	IABW-45	Micrometer 5-50 mm inside	4		4
3	IAAM-66 IAAM-68	Micrometer 0.25cm outside		7	7
4	IABW-1 IAAM-1	Rule steel 30cm to read (metric)	4	4	8
5	IABW-2 IAAM-2	Rul steel 60cm	4	4	8
6	IAAM-90	Wing compass 25.4cm or 30cm		2	2
7	IAAM-52	Magnifying glass 7cm		2	2
8	IAAM-121	Screw thread micrometer with interchangeable 0.4-1.75mm, pitch metric threads 60		1	1
9	IAAM-122	Depth micrometer o-100mm, 0.01mm Accuracy		1	1
10	IABW-10, IAAM-10	Sprit level metal 15cm	4	1	5
11	IABPRO-39	Linear Scale	2		2

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 26
Hammer & Chisel, Stone oil, Oil can & Blow Lamp

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IAAELE-12	Hammer cross pin 150 gm with handle		16	16
2	IABELE-11	Hammer cross pin 125 gm with handle	16		16
3	IAAELE-15	Hammer ball pin 0.75 kg with handle		16	16
4	IABELE-20	Hammer ball pin 250 gm with handle	4		4
5	IABELE-21	Hammer claw 250 gm with handle	4		4
6	IAAM-64	Extractor stud ezy out		2	2
7	IAAM-91	Hand hammer 1 kg, 2 kg with handle		2	2
8	IABW-59	Planishing hammer 02 Kg.	4		4
9	IABELE-23	Tubuler hex frame adjustable	2		2
10	IABW-58	Setting hammer with handle	4		4
11	IAAELE-14	Tennon saw 250 mm with handle		16	16
12	IABELE-24	Tennon saw 200 mm with handle	2		2
13	IABW- 56 IAAM97	Mallet Hammer	4	2	6
14	IAAELE-55	Hacksa frame Adjustable 30 cm		8	8
15	IAAM-42	Stone Oil 15cm*5cm*2.5cm		1	1
16	IAAM-43	Stone carboramdum 15cm*5cm*5cm*4cm		2	2
17	IAAM-44	Oil Can 0.25 litres		2	2
18	IAAM-47, IAAELE-97	Blow lamp 0.55liters (1/2 liters)		2+2	4
19	IAA ELE- 34	Oil Can 0.12 litres		2	2
20	IAAM-94	Shovel Standard		2	2
21	IAAM- 96	Leather apron		2	2
22	IABW-63 IAAMELE-93	Rawl plug tools&bit 8no & 12no	4	2	6

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 27

Scriber, Center punch and Try square, Scrapper flat , Chisel cold flat

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IAAELE-7	Scriber 150 mm (Knurled) center position		16	16
2	IAAELE-10	Center punch 150x10mm		16	16
3	IABW-55	Princk punch 150x10 mm	4		4
4	IAAELE-58	Try square 200mm	4	8	12
5	IAAELE-18	Bradawl square point 150 mm		16	16
6	IAAM-11	Punch hollow 6 mm to 19 mm set of 5		2	2 set
7	IAAM-12	Punch round 3 mm x 4 mm set of 2		2	2 set
8	IABW-11	Punch letter 3 mm set	4		4 set
9	IABW-12	Punch number 3 mm set	4		4 set
10	IAAM-125	Engineer's try square (knife wedge)		1	1
11	IABW- 8 IAAM-8	Square adustable 15cm with a blade	4	2	6
12	IABW-36 IAAM-59	Scrapper flat 15cm	4	8	12
13	IABW-37, IAAM-60	Scrapper 3 corner 15cm	4	8	12
14	IABW-00 IAAM-61	Scraper half round 15cm		8	8
15	IAAM-56	Reamer adustable max.9mm 12mm, 19mm set of 3		1	1 set
16	IAAM-57	Reamer taper 4mm to 9mm set of 4		1	1 set
17	IAAM-58	Reamer Parallel 12mm to 16mm set of 5		1	1 set
18	IAAELE-28	Chisel cold flat 12x200 mm		2	2
19	IAAELE-16	farmer chisel 12mm wood handle		16	16
20	IAAELE-29	Farmer chisel 25x6 mm		4	4
21	IAAELE-17	Gimlet 6 mm with handle		16	16
22	IABW-39 IAAM-61	Chisel cold cross cut 9x200 mm	4	8	12
23	IABW-40 IAAM-62	Chisel cold flat 19x200 mm	4	8	12
24	IABW-41 IAAM-63	Chisel cold round nose 9x200 mm	4	8	12
26	IABW-3, IAAM-3	Straight edge 45cm steel	4	2	6

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 30

Spanner Item, Pipe wrench, Jack planner, Adjustable spanne, Wheel dresser

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IAAELE-27 IAAM-49 IABW-35	Spanner adjustable 150 mm	4	2 2	8
2	IABELE-16	Slide wrench (25 mm jaw)	2		2
3	IAAELE-59 IABELE-17	D.E. Spanner set standared (Taparia) set of 12	2	2	4 set
4	IAAELE-60 IABELE-18 IABELE 7	Ring spanner standared (Taparia) set of 12	2	2	4 set
5	IABW-53 IAAM-78	Pipe wrench 40 cm	4	1	5
6	IAAM-50	Interchangable rachate socket set width 12 mm driver socket range 4 mm set of 8 no.		1	1set
7	IAAM-51	Apollo box spinner set in mm 3x4, 6x7, 9x11, 12x14, 15x19, 22x25 set of six		1	1set
8	IAAM-79	Pipe wrench 30 cm		1	1
9	IABW-62 IABELE-14 IABELE-19 IAAELE-33	ALLEN KEY set	4 16 2	1	23 set
10	IABW-69	Jack planner 24"	4		4
11	IAAM-48 IABW-34	Spanner width-worth de-6mm to 25mm set of 12	4	8	12set
12	IAAM-119	Adjustable spanner 38 cm long		1	1
13	IAAM-81	Adjustable pipe die 0-20 cm capacity		1	1
14	IAAM-82	Wheel dresser (1 for 04 units)		1	1

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 32

Pnumatic hydraulic simulation software videos/textbooks

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B) IAB	Bastar(A) IAA	TOTAL
1	IABHY & PNUMATIC-15	**Pnumatic hydraulic simulation software videos/textbooks** **Hydraulic Simulation Software** Three-dimensional lavoratory on a computer screen. The actual equipments are replaced with three- dimensional virtual components & devices with the same functionality & appearance as the actual equipments. Students can interconnect & manipulate any components to perform any experiments & obtain the same results as the actual equipments. Accurate simulation of the mechanical & electrical characteristics of the hydraulic components & electrical control devices. Displays detailed cutaway views of the hydraulic components to observe fluid flow inside the components. Cost-effective & accurate virtual training system for comprehensive study of Electro Hydraulic **Should have follwing Software Features** Install, move or remove hydraulic components & electrical control devices. Modify or remove connections at any time. Zoom in or out to adjust the view. Perform flow, pressure, force, velocity & rotation speed measurements. Observe motor rotation, as well as the extension & retraction of cylinder rods. Observe fluid flow inside hydraulic components. Save & restore equipment setups **Should cover following Topics** Introduction to Hydraulics Hydraulic Power Pressure Limitation Pressure & Velocity Work & Power Cylinder Control Cylinders in Series Cylinders in Parallel Regenerative Circuits Accumulators Hydraulic Motor Circuits - Pressure Reducing Valves Remotely - Controlled Pressure Relief Valves Electrical Control of Hydraulic Systems Concepts of Basic Electricity & Ladder Diagrams Hydraulic Sequencing of Cylinders Electrical Sequencing oc Cylinders Speed Regulation & Braking of Hydraulic Motors Continuous Recipraocation with Dwell Period Drilling System Safety Circuits Counting of Actuator Cycles Multi- Pressure Systems Rapid Traerse- Slow Feed Systems **Should have following Components** Work Surface Power Unit Directional Valve, Lever-Operated Relief Valve, Non-Compensated Relief Valve	1		1

Pressure - Reducing Valve
Directional Valve, Double - Solenoid Operated
Directional Valve, Single - Solenoid
Operated
Sequence Valve
Flow Control Valve, Pressure
Compensated
Check Valve
Double - Acting Cylinder, 2.5-cm Bore
Double -Acting Cylinder, 3.8-cm Bore
Bidirectional Motor & Flywheel
Pressure Gauge
Flowmeter
DC Power Supply
Push Button STation
Limit - Switch Assembly
Relay
Time - Delay Relay /Counter
Pilot - Lamp Station
Pressure Switch
Magnetic Proximity Switch
Diffuse Reflective Photoelectric Switch Loading Device
Manifold

Pneumatic Simulation Software

Three-dimensional laboratory on a computer screen.
The actual equipments are replaced with three-dimensional virtual components & devices with same functionality & appearance as of the actual equipments.
Students can interconnect & manipulate any components to perform any experiments & obtain the same results as the actual equipments.
Accurate simulation of the mechanical & electrical characteristics of the pneumatic components & electrical control devices. Displays Detailed cutaway views of the pneumatic components to observe air flow inside the components.
Cost-effectiv & accurate virtual training system for comprehensive study of Electro Pneumatic.

Should have following Software Features

Install, move or remove pneumatic components & electrical control devices.
Modify or remove connections at any time.
Zoom in or out to adjust the view. Perform flow, pressure, force, velocity & rotation speed measurements.
Observe motor rotation, as well as the extension & retraction of cylinder rods.
Observe air flow inside pneumatic components.
Save & restore equipment setups.

Should cover following Topics

Introduction to Pneumatics conditioning & Distribution of Air Pressure versus Force Pressure versus Volume Pressure Drop versus Flow Vacuum Generation Directional & Speed Control of Cylinders Cylinders in Series Cylinders in Series Cylinders in Parallel Indirect Control using Pilot- Operated Valves Valves Pneumatic Motor Circuits Pneumatic Motor Performance Electrical Control of Pneumatic Systems Concepts of Basic Electricity & Ladder Diagrams

		AND & OR Logic Function Circuits Multi-Pressure Systems Sequencing Pneumatic Circuits Time - Delay Electro-pneumatic Applications Pneumatic Actuator Deceleration Circuits Counting of Actuator Cycles Industrial Drilling System & Safety Circuits Garbage Compactor Simulation Circuit **Should have following components** Work Surface Air Compressor Conditioning Unit Accumulator Vacuum Genertor Directional Valve, Push-Button Operated Flow Control Valve Directional Valve, Double-Air-Pilot Operated Directional Valve, Single - Solenoid Operated AND Function Valve Shuttle Valve Quick Exhaust Valve Pressure Regulator Single-Acting Cylinder Double - Acting Cylinder Bidirectional Motor Air Bearing Diffuse Reflective Photoelectric Switch Pressure Gauge DC Power Supply Push- Botton Station Limit-Switch Assembly Time Delay Relay / Counter Pilot-Lamp Station Pressure Switch Magnetic Proximity Switch Flow meter Relay Loading Device Tee			

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 33

Mobile labaratory workbench for pnumatics & Hydraulics

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABHY & PNUMATIC-2	**Mobile labaratory workbench for pnumatics** The Mobile work bench should consist of a mini compressor mounted on a mobile table with an FR unit and manifold with four on/off valves. All the connectors should be push type. The mini compressor should have tank capacity of 5 kg and 1/2HP motor single phase should be used. The FRL unit should have a pressure gauge mounted onit. The on/off valves should be of SS material. Following mini pneumatic components should be provided with magnetic base. Single acting cylinder, Double acting cylinder, Hand Lever Valve, Roller Lever valve, Push button valve, Quick Exhaust valve, Flow contral valve, PU tubes. **AIR SoURCE :** Clean filtered air source with moisture trap (Suitable compressor to be supplied) REGULATOR : Regulator with Air filter & Lubricator ; 50 p s i with pressure guage ACTUATOR : 1. Single Acting cylinder 1 No. 2. Double acting cylinder 1 No. 3. ON/OFF actuator 1 No. 4. Rotary actuator 1 No. (0-90 degree fitted with ball valve) VALVES : On/Off valve with actuator 2x3 Directional control valve. 5/3 Direction Coantrol Valve 5/3 Double Pilot Valve 5/3 Double Solenoid Valve 3/2 Single Solenoid Valve 5/3 Roller Operated DC valve 5/3 Lever Operatedd DC valve Air Manifold 5/3 CONNECTIVITY: QRC typ with suitable male/Female SIGNAL PRESSURE : 3-15 p s i PLC INTERFACE : Electrical Interace should be provide with the system with Limit Switches, Magnetic switches, Proxy Sensors, Relays, Test points & PPatch cords. & should be capable of interfacing with Allen Bradile PLC	4		4

2	IABHY & PNUMATIC-8	**MObile labaratory workbench for Hydraulics** The Mobile work bench for Hydraulic should consist of a power pack adjustable up to 80 bar. The Hydraulic Power Pack should be mounted on wheels. It should have a pressure relief valve to adjust the output pressure to the desired value. A flow control valve should be provided to control the flow of oil. The Power Pack should contain od the following : A) Hydraulic Power Pack : Oil reservoir tank, Level Guage, Breather Filter, Return line Filter, Drain Plug B) Pump & Motor : Geared pump with forward fotation with motor of suitale capacity for pressure development. C) Actuator : Single / Double acting cylinder, Rotary Actuator D) Action Demonstration of actuator : Two axies movement (X-Y direction) using two cylinders. Rotational movement using rotary actuator E) Sequential Operation demonstration. F) Valves : 1) Direction Control Valve 2) Flow Control Valve 3) Deceleration Valve 4) Pressure relief Valve 5) Check Valve 6) Shut off Valve 7) Manifold Block G) Drip trey : A oil trey for drip oil collection H) Connectivity : Flexible hoses with couplings. (QRC couplings should be quoted optionally. PLC INTERFACE: Electrical Interface should be provide with the system with Limit Switches, Magnetic switchesm Proxy Sensors, Relays, Test points & Patch cord. & should be capable of interfacing with Allen Bradley PLC	4		4

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 34

Reciprocaling air compressor single stage.

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABHY PNUMATIC-6	Reciprocaling air compressor single stage. For dismant ling and assembling practice displacement 4cm, working press are 4 bar	2		2

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 35
Oil Testing Kit (FOR MOTORISED OIL TEDSTING KITS)

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IAAELE 148	**Oil Testing Kit (FOR MOTORISED OIL TEDSTING KITS)** The oil testing kit shall be fully automatic microprocessor/micro controller based system completely self contained with buil in printer for testing breakdown to IS 335 up to 100 KV when measured in accordance with IEC-156, IS, 6792 specification. The features and technical particualrs of the kit shall be as under The resolution of test voltage should be 01 KV or better The kit shall be of composite type having control unit of HV transform3er in a common cabinet with necessary partition. It shall be provided with , HV chamber, interlocking & zero start inerlocking. The kit shall be complete with tes cell, stirrer, GO and NO GO gauge for adusting, gap, & suitable calibrator. The Parameter for test specification as diefined by different standards viz IS 67892, IECI56, ASTM should be preprogrmmed in the kit. The user shall only need to select the standard used for test. The kit shall be suitable for operation at 230V , 50 HZ, single phase, aC supply. The kit should give all the "test results with standard deviation and a pass/fail message on screen & on printer. The kit should also tbe provided with RS 232 interface for connection to external PC or Printer. The test cycle for testing bthe Electric strenght (BDV) shall be fully automatic and it shall be possible to record test data and sample No. on the printed report. The count down of wait, stri and settle period shall be possible. The LCD/LED position indicatior shall be provided for temperature, time, test number and voltage in KV. The instrument shall have a large backklit liquid crystal display (LCD)/ LED display to show test menu, setup screens and test results, the display shall be provided for indicatiing door open, wait time, HT on, KV rise. stir time, settle time, temperature and BDV interlock for HT chamber and protection through base ware for unauthorized use dshall be provided the kit shall be self sufficient for conducting all routine tests with high aaccuracy thereby eliminating dependency on the skill and training of the operator,		1	1

		the kit shall have control and data logging unit, wghich shall log the volatage at the time of occurrence of the breakdown and shall proceed to conduct subsequent steps such as stirrer operation and wait time of the test cycle as per the selected programme. after each breakdown audible beep sound shall be available and after completion of the test cycle, double beep sound shall be provided. Operation Mode: The kit shall have motorized drive to incr3ease voltage linearly as per rate spectified in various testing standards HV transformer: the HV transformer shall be 50-0-50 KV heavy duty doulble wound, air cooled, epoxy resinencapsulated 1KV a rating transformer with 2HV terminals and necessary mounting saddles. The midpoint of the transformer shall be connected to earth through current transformer with trip circuit. Oil test cell Vessel: the oil test cell shall be made from transparent acrylic sheet/ glass or other suitable materials with adaptor and removable 36mm sushroom head electrodes and the effective oil volume shall be between 300 to 500 ml in accordance iwth IS 6792 and IEC156. The test cell shall be suitable for BDV upto 100KV without external flashover. it shall be possible to checkthe elec trode gap distance throutgh GO and NOGO Gauges amde of alloy steel and these gauges shall be precision ground hardened. the test cell cover shall be made of acrylic materials glass or other suitable materials. Safety and interlocks: the transparent hood to HT chamber shall have an interlock suck that opening of hood shuts off high voltage. Also with the hood as open, HV cannot be swithed on. The output controller shall be interlocked at its minimum position so that HV could be switched on only with the voltage controller is at zero. At maximum positions, the meter shall be switched off to avoid damage to variable transformer, in the event of iol breakdown, a fast acting DC relay shall isolate the HT thereby automatically tripping the kit. Indicator lamps: three indicator lamps shall be provided - * Green for main's on * Yellow for HV off * Red for HV on Cabinet: cabinet shall be portable, powder, coated sheet steel of adequate thickness and shall be provided. With lifting handles. **Technical specification:** **Descriptons and Specification** Input Supply: 230 Volts AC. 50 Hz. Single. Phase Display Dot matrix LCD/ Large LED Resolution O.1 KV Accuracy Better than +/- 3% Shut down sensitivity 5m A ro better shut down time <20 milliseconds. Test cell and electrodes Glass/acrylic container with 36mm mushroom electrodes. Gap gauge 2.5 mm			

		Cabinet Table top model in sheet metal power, coated Printer Alpha numeric			
		Temperature range Operation 0 to 40 deg. C Humidity 80% RH at 40 D'egC Safety requirement Shall meet IEC 1010.1 & 5304 Port RS232c 5pin Din Sofckets			

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 36

Meta rectifier, Variable Auto transformer, OCB with Panel, MCB, Megger Analog Type

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IAA ELE 131	Meta rectifier 10amp silicon rectifier 10amp		1	1
2	IAAELE 144	Variable auto transformer 0-250v 5amp		5	5
3	IAAELE 152	OCB 5kva with panel		1	1
4	IAAELE 153	MCB 5kva		1	1

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 37

Photo taclhometer, Pressure Regulator

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABPRO-29	Photo Tachometer Digital non-contact type tachometer, having exclusive one - chip of microcomputer LSI circuit, 5 digit LCD display with quartz crystal time base and ratain the last valve, max. valve & min. valve. Measuring ranges : up to 99999 RPM for Non contact mode with a Resolution of 0.1 RPM and accuracy of 0.05% or better, to be supplied along with carrying case, reflective tape, RPM cone adaptor, Funel adaptor, surface speed test wheel etc.	2		2
2	IABPRO-44	Air Filter Pressure Regulator & test Rig.	2		2

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Schedule of Requirements
Package - 38
Guages

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABPRO-25	Contilever type bonded strain Guage trainer kit	4		4
2	IABPRO-27	Distortion factor meter pressure guage (0-1Kg 11M2, 0-10Kg 11M2)	1		1

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 39
Temperature Controllor, Engery meter

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABPRO-23	Temperature Controller DTC 276x 220VAC +-10%, sensor- pt-100-50 to 199.9	1		1
2	IABELE- 20	Engery meter 1ph digital	1		1
3	IABELE- 21	Engery meter 3 ph digital	1		1

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Schedule of Requirements
Package - 40+42
Soldering and Desoldering Iron, Neon Lamp Tester, Tweezer, Ele Knife, Synchrospe

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABPRO-10	Desoldering Pump	11		11
2	IABPRO-41	Soldering Station	1		1
3	IABPRO-42	Desoldering Station	1		1
4	IABPRO-43	Hot air soldering station cum desoldering station for SMD device	1		1
5	IABW-65	Soldering Iron 25w, 125w, 165w	3		3
6	IABW-65	Soldering iron 25w, 35w, 65w, 125w	4		4
7	IABELECT-17	Desoldering Station of latest type with kit for IC extraction	1		1
8	IABELEC-9 IABPRO-2 IAAPLC-2 IAAELE-13 IABELE-10	Neon Lamp Tester 500v Heavy duty (Taparia)	16 16 16	 16 16	80
9	IABELEC-12 IABELE-12	Tweezer 10 cm insulated	16 16		32
10	IAAELE-105	Tweezer 150 mm		4	4
11	IABELECT-13 IABPRO-7 IABELE-5 IAAPLC-7 IAAELE-11	Electrician Knife Double Blade	 16 16 16	 16 16	80
12	IAAPLC-29	Synchrospe		2	2

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)

Schedule of Requirements

Package - 41

Process Control Trainer

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IAAPLC-36	Process control Trainer (Feedback Make)		2	2

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 49
Meggar Analog Type

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
1	IABELCTRO-23 IABPRO-19	Meggar Analog Type 500v	1 1	-	2

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 50
Earth Tester

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B) IAB	Bastar(A) IAA	TOTAL
1	IABELCTRO-20	**Earth Tester. 3 1/2 Digit LCD Display Digital Earth Tester With Rechargeable Battery and Charger** Technical Specification of Digital Earth Tester • Earth Resistance Range : 20Ω, 200Ω, 2000Ω 0.010Ω to 19.99 Ω 0.1Ω to 199.9 Ω 1 Ω to 1999Ω • Resolution : 0.01 Ω • Accuracy : ± 1.5% of Reading ± Digit Valid From 10% of reading to 95% of range. • Test Freq. : 128 Hz ±0.5Hz • Interference : Interference voltage of 20V ±5% peak-to - peak, 50Hz In the potential circuit will have a maximum Effect of ± 1% on the reading obtained for the 20 Ω to K Ω Ranges • Test Current 20 Ω Range : 10mA AC rms 200 Ω Range : 1mA AC rms 2000 Ω Range : 100µA AC rms • Maximum Open Circuit Output Voltage : 36V Approx • Display : 3 ½ Digit LCD,Max Reading 1999 • Voltage Withstand : In the Event of a system fault, the instrument withstand 240 V AC applied between any two Terminal • Influene of Temperature : <±0.2% per ◦C over the temperature range 0-20 ◦C And 28-55 ◦C • Temperature Range : Operating 0 ◦C to + 50 ◦C Storage : -20 ◦C to +60 ◦C • Humidity : Operating : 95% RH no Condensing max at 40 ◦C • Storage : 95% RH max at 55 ◦C • Flash Test : 3kV AC or more • Power Supply : internal Rechargeable Ni-MH 1.2V 600mAh x 8 Nos. • Charging Time : Around 17 Hrs. • **Supplied Accessories** : 1. Operating Instruction Manual 2. Battery Charger 3. Carrying Bag Containing Galvanized steel spikes 10mmdia, 450mm long. 4. 10m,20m30m & 40m of cable on a winder as standard. one Hammer, one Screwdriver & one Pliers	1	-	1

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 51
PLIERS & SREW DRIVERS

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
			IAB	IAA	
1	IABELECT-1 IABPRO-4 IABELE-1 IAAPLC-4 IABW-38 IAAM-45	Combination pliers 15 cm Insulated (Taparia)	16 16 16 4	16 2	70
2	IAAELE-1	Combination pliers Insulated 200 mm Heavy duty (Taparia)		16	16
3	IAAELE-56	Plier flat nose 150mm (Taparia)		16	16
4	IABELECT-5	Heat sink Plier (Taparia)	16		16
5	IABELECT-8 IABPRO-5 IABELEC-3 IAAPLC-5	Long nose insulated plier 15 cm (Taparia)	16 16 16	16	64
6	IABELE-5 IAAELE-57	Long nose insulated plier 150mm round nose (Taparia)	16	16	32
7	IABPRO-11 IABELE-2 IAAPLC-11 IAAELE-19	Insulated side cutting plier 150 mm	16 16	16 16	64
8	IABELEC-2	Diagonal cutter 15 cm insulated (Taparia)	16		16
9	IABELEC-4	End cutting nipper insulated 15 cm (Taparia)	16		16
10	IABPRO-1 IAAELE-6 IAAPLC-1	Connecting screw driver 100 mm	16	16 16	48
11	IABPRO-3 IABELE-6 IAAPLC-3	Screw driver set (set of five bits) (Taparia)	16 16	16	48
12	IABELE-7 IAAELE-3	Screw driver set 150 mm insulated (Taparia)	16	16	32
13	IABELE-8 IAAELE-2	Screw driver set heavy duty 200 mm insulated (Taparia)	16	16	32
14	IAAELE-4	Screw driver 250 mm heavy duty insulated Taparia		16	16
15	IAAELE-5	Screw driver 300 mm heavy duty insulated (Taparia)		16	16
16	IABELE-10	Screw driver set of six (Taparia)	16		16
17	IABELE-7	Knob screw driver insulated 10 cm (Taparia)	16		16

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INDUSTRIAL TRAINING INSTITUTE BASTAR (C.G.)
Schedule of Requirements
Package - 52

Mechanical Item,Pincer, Crimping Tools and measuring Tape,Safety belt Item, Bar Magnet Complete set, Leader (Stair),

S.N.	ITI/ITEM Code No.	Details of Specification	Bastar(B)	Bastar(A)	TOTAL
1	IABELE-35 IAAELE-95	Bearing puller 25 mm	1	1	2
2	IAAELE-94	Pully puller		1	1
3	IAAELE-100	Stop watch		1	1
4	IAAELE-101	Scissors blade 150 mm		4	4
5	IAAELE-102	Snip staight 150 mm		2	2
6	IAAELE-103	Snip bend 150 mm		2	2
7	IAAELE-96	Leader aluminium sliding type size 12 f		2	2
8	IAAELE-113	Metal rack 180x150x45 cm		2	2
9	IAAELE-89	Safety belt with tool kit arrangement		5	5
10	IAAELE-90	Rubber hand glove 500v heavy duty		2 pair	2 pair
11	IABPRO-12 IAAPLC-12	Firstaid kit	1	1	2
12	IAAELE-21	Bar Magnet complete set		1	1
13	IAAELE-9	Pincer 6" or 150mm (Taparia)		16	16
14	IABELE-27	Crimping tools 12 mm (Taparia)	2		2
15	IABELE-25	Measuring Tape 2 m	4		4
16	IAAELE-99	Measuring Tape 3 m		2	2
17	IAAELE-82	Crimping lug punching machine (lug) 15,30,100,200,250 amp		1	1
18	IAAELE-83	Wire stripper 20 cm (Taparia)		4	4

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