



Central Tool Room & Training Centre

MSME - TOOL ROOM, BHUBANESWAR
AS 9100, ISO 9001, 14001, 50001 & OHSAS 18001 Certified
A Govt. of India Society, Ministry of Micro, Small and Medium Enterprises



Invitation for Expression of Interest(EOI)

Expression of Interests for design, establishment of Lab & supply of Tools for Training of Trainers (TOT) of Electrician & Fitter Trade on turnkey basis are invited from interested and experienced reputed /firms agencies having experience in establishing similar turnkey project .

Sl No	EOI Ref No	EOI Submission Closing Date & Time	Item Descriptions & Quantity.
1	CTTC/BBSR/TRG/2019-20/EOI-103 Date 09.11.2019	09.12.2019 At 15.00 hrs	Design, establishment of Lab & supply of Tools for Training of Trainers (TOT) of Electrician & Fitter Trade on Turnkey basis.

The detail Scope of Work and terms and condition for Expression of interest may be downloaded from the CTTC website www.cttc.gov.in from 15.11.2019 onwards. The agencies shall be solely responsible for checking the website for any addendum/corrigendum issued in this regard and take into consideration of the same while preparing and submitting the EOI. CTTC reserves the right to accept or reject all are any Expression of Interest without assigning any reasons whatsoever.



Managing Director
Central Tool Room & Training Centre
B-36, Chandka Industrial Area, Bhubaneswar-751024
Phone: (0674) 3011710
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Central Tool Room & Training Centre(CTTC)

Bhubaneswar-751021

Ref No: CTTC/BBSR/TRG/2019-20/EOI-103

Dated 9th Nov 2019

Invitation for “Expression of Interest”

“Invitation for expression of Interest for Design, establishment of Lab & supply of tools for Training of Trainers (TOT) of Electrician & Fitter Trade (20 trainees each) on turnkey basis”

Central Tool Room & Training Centre (CTTC) is a Govt of India Society under administrative control of Ministry of MSME , Govt of India . Aim & Objective of CTTC is to develop production facilities of Moulds ,jigs,fixtures, gauges & other sophisticated tools preferably for Micro Small & Medium Enterprises. To train Manpower in the field of Tool Making & other allied engineering trades both for the fresher and for personnel already engaged in the field . To provide common facilities in precision machining & heat treatment and to provide consultancy facilities in the above field.

As a part of its upcoming activity, CTTC is in the process of establishing lab for Electrician & Fitter trade under Craft Instructor Training Scheme on turnkey basis.

Brief description and scope of work, detail requirement of tools & instrument is available and can be downloaded from CTTC Website: www.cttc.gov.in .

Interested parties/agencies having experience in similar work with Govt or reputed organisation having adequate knowhow, financial background, expertise and commitment are invited to express their Interest.

Expression of Interest mentioning the ReF No : CTTC//BBSR/TRG/2019-20/EOI-103 addressed to The Managing Director, Central Tool Room & Training Centre , B-36, Chandaka Industrial Area, Near Patia Square , Bhubaneswar-751024, should reach this office on or before 09.12.2019 at 15.00 hrs. This proposal is initiated as Pre-bid Qualification. Inadequate, incorrect or incomplete Expression is liable to be rejected. CTTC reserves the right to accept or reject all or any Expression of Interest without assigning any reason whatsoever. Mere compliance to the EOI terms does not guarantee further consideration for qualification.

Addendum/orrigendum if any to this EOI shall be hosted in CTTC website. It is the responsibility of the bidder to see our website www.cttcgov.in for update if any and act accordingly.

Last Date of submission: 09.12.2019. Sealed envelopes mentioning the EOI Ref No ,sends detail address containing the EOI along with all the required documents should reach to the Managing Director on or before the due date. To avoid the last minute error bidders are

requested to submit their EOI well in advance. EOI received after due date and time shall not be considered.

Scope Of Work and Bill of Qty: Attached as per the annexure.

Scrutiny & Eligibility Criteria:

1. The bidder/agency should have successfully executed minimum 3 (three) similar labs in any Govt/reputed organisation during last 3 financial year(16-17,17-18 & 18-19) . Work order, completion certificate and performance certificate to be submitted.
2. Annual Turn Over of the agency should be minimum 5.00 crore per annum during last there financial year.(year wise Audited Income expenditure sheet to be submitted) .
3. Minimum 3 work orders each valued minimum 2 crores during last 3 financial year to be submitted.
4. Agency /bidder executed similar lab with MSME Tool Room shall be given preference.
5. Agency having quality certification shall be preferred
6. Agency should have adequate technical capability to execute the work. For evidence detail of persons working, machines and implements available to be submitted. Also Detail design with Drawing of the proposed work to be submitted as evidence.
7. Items to be supplied as per the Bill of Quantity should be ISI marked reputed make. Dealership certificate to be submitted along with EOI.
8. Based on the qualifying eligibility criteria, bidders/agencies who will secure **minimum 60 marks** shall be shortlisted. Example of EOI eligibility criteria given in the table below for reference.

Table for Eoi eligibility criteria

Criteria	Sub-criteria	Weightage/ Mark out of 100	Break-up of Weightage/ Mark
Past experience of the firm with similar requirements	Year wise for 3 years	24	8 Per year
Financial strength of the vendor	Annual Turn over minimum 5 Crores per annum for last 3 years	24	8 per year
Minimum 3 work orders valued 2 crores each executed during last 3 years	3 work orders	24	8 per work order
Executed similar work with MSME Tool Room during last 3 years		4	
Quality certification		4	
Technical Capability (detail of person with qualification working to be submitted). Detail design and drawing of the proposed work to be submitted.		10	5 for working personnel and implements and 5 for design and

			Drawing
Product support. Dealership certificate or manufactures confirmation for giving the service support during warranty period to be submitted.		10	

9. After scrutiny of EOI, Technical discussion/pre bid conference shall be held with the shortlisted agencies/bidders, which are prima facie considered technically and financially capable of design, supply and establishment or execution of proposed work. However after shortlisting if there will be inadequate agencies for 2nd stage or committee will of the view that there is likelihood of further participation by many more bidders CTTC reserves the right to go for normal Open tender Enq .(Ref GFR 2017 Rule 164 and Manual for Procurement of Goods 2017 . Clause No 4.14.2(v).
10. A declaration in the bidders letter head has to be submitted saying that the facts provided are true and if found false in any stage their participation shall be cancelled and may attract blacklisting in CTTC and other MSME Tool Rooms.

Name of the work: Turnkey installation of Electrician Workshop for 20 students capacity under Craft Instructor Training Scheme.

Objectives:

The allotted space should be designed for the following purpose also system & accessories for delivery of lessons & interaction should support the same and When needed the workshop will be used for onsite demonstration. Thus, there should be no obstruction of vision so that students can learn and interact with the Trainer without any hindrance.

Major purpose for setting up the lab is:

1. To train the trainers of Electrician trade of various it is of the country
2. Development of practical as well as teaching skill

Steps of execution:

Step1

Preparation of the Workshop

A hall of size of approx. 58.75 X 46.05 feet is available for the purpose. It is required to supply and install all the materials to build the laboratory to fulfill the required objectives. The tender should include Planning, design, preparation of working drawing for interior and execution of works. Parties should produce proposed design along with the material specification of the following items with the quotation.

Guiding points are:

- a. Details of Furniture arrangement (Wall cup boards for storing the supplied items and students personal belongings, Electrical Work stations, Instructor table, Chair, White board etc.)
- b. All Side wall treatment
- c. Room & furniture painting if required
- h. Fire extinguisher
- i. Any other add-on items proposed i.e. digital prints for safety posters etc.

Step 2

Installation of Machinery and Equipment in the Workshop effective demonstration and doing Practical Exercises as per the syllabus:

Customised Electrical Shop outfit as per the enclosed BOQ

- Aesthetically looked durable electrical work stations

- All work stations to be fitted with specific machineries and control elements for smooth operations
- Parameter measuring devices should be properly mounted with each work stations
- All the circuit diagram should be displayed on the control panel
- Moreover, the workstations should be prepared to avoid any electrical hazards
- Workstations and all the equipment should be of world class standard.
- All measuring devices to be supplied with test certificate from the competent authority.

Complete cabling & system related electrical work

- Cabling between the main control panel to the work station basing on the equipment mounted

Bill of Materials:

As per the enclosed Annexure

Name of the work: Turnkey installation of Fitter Workshop for 20 students capacity under Craft Instructor Training Scheme.

Objectives:

The allotted space should be designed for the following purpose also system & accessories for delivery of lessons & interaction should support the same and When needed the workshop will be used for onsite demonstration. Thus, there should be no obstruction of vision so that students can learn and interact with the Trainer without any hindrance.

Major purpose for setting up the lab is:

1. To train the trainers of Fitter trade of various it is of the country
2. Development of practical as well as teaching skill

Steps of execution:

Step1

Preparation of the Workshop

A hall of size of approx. 58.75 X 46.05 feet is available for the purpose. It is required to supply and install all the materials to build the laboratory to fulfill the required objectives. The tender should include Planning, design, preparation of working drawing for interior and execution of works. Parties should produce proposed design along with the material specification of the following items with the quotation.

Guiding points are:

- a. Details of Furniture arrangement (Wall cup boards for storing the supplied items and students personal belongings, Fitter Work stations, Instructor table, Chair, White board etc.)
- b. All Side wall treatment
- c. Room & furniture painting if required
- h. Fire extinguisher
- i. Any other add-on items proposed i.e. digital prints for safety posters etc.

Step 2

Installation of Machinery and Equipment in the Workshop effective demonstration and doing Practical Exercises as per the syllabus:

Customised Electrical Shop outfit as per the enclosed BOQ

- Aesthetically looked durable Fitter work stations
- All work stations to be fitted with specific tools and equipment for smooth operations

- Measuring devices should be properly mounted with each work stations
- Provision should be made to display the various exercise drawings on the work station
- Workstations and all the equipment should be of world class standard.
- All measuring devices to be supplied with test certificate from the competent authority.

SPECIFICATIONS-SS WORK STATION

Name of the Item: STAINLESS TABLE of size, Length 93" x Width 44" x Height 36"

Specification: Rectangular vice Table made out of 1.2 mm thick AISI-202 top width 40 X 20 X 1.2 mm thick rectangular AISI-202 pipe as frame below the top, TIG welded to AISI-202 pipe legs 40 x 40 x 1.5 mm thick as uprights and AISI-202, 30 x 30 x 1.5 mm thick pipe as cross supports, 144 mm above the floor level. Working top is to be provided with radius on all four corners to avoid sharp ends, and will be provided with 3 sets of slots (16 mm dia. x 34 mm long- 02 nos. against each set) with AISI-202 pressed angles on both sides (to tighten vice). Adequate size sections of AISI-202 sheet below the table top.

N.B.

1. Suitable reinforcement and supports may be provided while designing the vice table.
2. Vender may use either AISI-202 or AISI-304 sheets or sections as desired.
3. Gap of 144 mm may be provided from the table top and upright leg bottom respectively for positioning lockers.
4. All the sharp edges may be chamfered.
5. Suitable nylon buffers may be provided at each leg bottom.
6. G.A. drawing in duplicate may be submitted with quotation.
7. Guarantee/Warrantee against material (with test certificate) and workmanship would have to be provided with supply.

Bill of Materials:

As per the enclosed Annexure

Trade:- FITTER

ANNEXURE-I

National Institute for Training of Trainers
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Trade: Fitter(For 1st Sem.)

List of Trainee's Tool kit & other equipments

1	Try Square 10 cm blade	21 nos.
2	Out side caliper 15 cm spring	05 nos.
3	Inside caliper 15 cm spring	05 nos.
4	Caliper 15 cm Hermaphrodite	05 nos.
5	Divider 15 cm spring	05 nos.
6	Straight scribe 15 cm	21 nos.
7	Screw Driver 15 cm	05 nos.
8	Cold Chisel Flat 12mm	05 nos.
9	Ball pane Hammer 0.45 kg with handle.	10 nos.
10	Ball pane Hammer bal0.22 kg with handle	10 nos.
11	Flat File 25 cm lnd cut	21 nos.
12	Flat File 25 cm lnd cut smooth.	21 nos.
13	Half round File 15 cm lnd cut.	10 nos.
14	Hacksaw frame fixed 30 cm.	21 nos.
15	Safety goggles.	21 nos.
16	Dot punch 10 cm	10 nos.
17	Warding File 15 cm smooth	04 nos.
18	Knife edge File 15 cm smooth	04 nos.
19	File cant saw 15 cm smooth	04 nos.
20	File feather edge 15 cm smooth	04 nos.
21	File triangular 15 cm smooth	02 nos.
22	File round 20 cm 2nd cut	08 nos.
23	File square 15 cm 2nd cut	04 nos.
24	File square 25 cm 2nd cut	04 nos.
25	Feeler gauge 10 blades	01 set
26	File triangular 20 cm 2nd cut	06 nos.
27	File Swiss type needle set of 12	02 set
28	File half round 25 cm lnd cut	06 nos.
29	File round 30 cm bastard	04 nos.
30	File Card	06 nos.
31	Stone oil 15 cm x5 cm x2.5 cm	04 nos.
32	Stone carborandum 15 cm x 5 cm x 5 cm x 4	02 nos.
33	Oil Can 0.25 liters	02 nos.
34	Pliers combination 15 cm	02 nos.
35	Spanner Metric—worth D.E. set of 10 pcs.	06 nos.
36	Spanner adjustable 15 cm	02 set
37	Interchangeable ratchet socket set with a 12 mm driver, sized 10-32 mm set of 18 socket and attachments	01 set
38	Box spanner se 6-25 mm set of 8 with Tommy bar.	01 set
39	Clamp toolmaker 5cm and 7.5 cm set of 2	02 nos.
40	Clamp "c"5 cm	02 nos.
41	Clamp "c"10 cm	02 nos.

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42	Hand reamer adjustable cover max 9,12,18mm-set of 3	01 set
43	Hand reamer taper 4-9mm set of 6 or 4-7mm set of 4	01 set
44	Reamer parallel 12-16mm set of 5	01 no.
45	Scraper flat 15cm	06 nos.
46	Scraper 3 corner 15 cm	06 nos.
47	Scraper half round 15 cm	06 nos.
48	Chisel cold 9mm cross cut 9 mm diamond	06 each
49	Chisel cold 19mm flat	06 nos.
50	Chisel cold 9 mm round nose	06 nos.
51	Extractor stud EZY-out	02 nos.
52	Set combination 30 cm	02 nos.
53	Micrometer 0-25mm out side	03 nos.
54	Micrometer 25-50mm out side with 25 mm test piece	03 nos.
55	Micrometer 50-75mm out side with 50mm test piece	02 nos.
56	Micrometer in side 25-50mm	01 no.
57	Vernier caliper 20 cm	03 nos.
58	Vernier height gauges 30 cm	01 no.
59	Vernier bevel protractor	01 no.
60	Screw pitch gauge	01 no.
61	Wire gauge, metric standard	01 no.
62	Drill twist T/S 6mm to 25 mm x 1.5	01 set
63	Drill chuck 12mm	01 no.
64	Wheel dresser (1 for 4 units)	01 no.
65	Machine vice 10cm	01 no.
66	Machine vice 15cm	01 no.
67	Sleeve drill Morse 0-1,1-2,2-3	01 set
68	Bench Vice 12cm jaws	20 nos.
69	Leg Vice 10cm jaw	02 nos.
70	Fire Extinguisher	02 nos.
71	Fire Buckets	02 nos.
72	Wing Compass 25.4cm or 30cm	02 nos.
73	Hand Hammer 01KG with handle	02 nos.
74	Radius Gauges (Assorted)	10 nos.
75	Dial Test Indicator .01 mm with magnetic stand	01 no.
76	Lathe Tools HSS Tipped set	02 no.
77	Lathe Tools Bit HSS 6mm, 8mm, 10mm x 100mm	10 each
78	Counter Boring and Counter sinking Tool	02 nos.
79	Arm strong type bit holder RH	02 nos.
80	Arm strong type bit holder LH	02 nos.
81	Arm strong type bit holder Straight	02 nos.
82	Engineers Try Square (Knife wedge) 150mm Blade.	01 no.

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ii) Tools, Instrument & General Shop Out fit

1	Rule steel 30 cm to read metric	04 nos.
2	Rule steel 60 cm	04 nos.
3	Straight edge 45 cm steel	02 nos.
4	Surface Plate 45x45 cm Cl/granite	02 nos.
5	Marking table 91x91x122 cm	01 no.
6	Universal scribing block 22 cm	02 nos.
7	V- block pair 7 cm and 15 cm with clamps	02 nos.
8	Square adjustable 15 cm blade	02 nos.
9	Angle plate 10x20 cm	02 nos.
10	Spirit Level 15cm metal	01 no.
11	Letter Punch 3mm set	01 no.
12	Number Punch set 3mm	01 no.
13	Portable hand drill (electric) Oto 6 mm	02 nos.
14	Twist Drill s/s 1.5 to 12 mm by 1/2 mm	01set
15	Twist Drill s/s 8 mm to 15 mm by 1/2 mm	01 set
16	Taps and dies complete set in box B. A	01 no.
17	Taps and dies complete set in box width-worth	01 no.
18	Taps and dies complete set in box 3-18 mm set of 10	01 no.

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LIST OF MACHINES, EQUIPMENTS

1	SS and SC centre lathe (all geared) with having minimum specification as: centre height 150 mm and centre distance 1000 mm along with 4 jaw and 3 jaw chucks, auto feed system, safety guard, motorized coolant system and lighting arrangement.	02 nos.
2	Drilling Machine pillar type 0 - 20mm capacity with drill chuck & key	02 nos.
3	Pedestal Grinder Double End type. Wheel 300x40x50.8 mm Wheel centre distance 650 mm approx. Power of motor 1HP	02 nos.
4	Power Saw Machine Stroke length 160 mm No of speed stroke 3 Range of speed stroke 80-100-125 Blade size 525x45x2.25 Power of motor 1.5 kw	01no.
5	Fly Press 4T capacity	01 no.
6	Flat tongs 300mm	04 nos.
7	Round tongs 300mm	02 nos.
8	Straight snips 250/300mm	06 nos.
9	Bend snips 250/300mm	06 nos.
10	Solder bit/soldering iron hatchet type 250g	04 nos.
11	Anvil 50kg	02 nos.
12	Swage block	01 no.
13	Trammel	02 nos.
14	Hand groover 4mm, 5mm	02 each
15	Portable forge with hand blower 450mm	01 no.
16	Leather gloves	04 pair
17	Leather apron	04 nos.
18	Asbestos gloves	04 pair
19	Arc welding transformer-single phase, 200 Amps. (with cable, electrode holder and all other accessories)	02 nos.
20	Oxy-acetylene gas welding plant with all accessories	01 set
21	Gas cutting torch with different noses	01 set
22	Arc welding table with positioner-100 cmx75 cmx70 cm height	02 nos.
23	Gas welding table with fire bricks	01 no.
24	Safety charts and posters	As required
25	Grinding attachment for Lathe	1 Set
26	TIG Welding Machine 200 AC/DC, Rated input voltage 220 v Input frequency 50 Rated power 6.2 KVA Duty cycle 60 %	1 Set
27	Equipment for conducting BLS (Basic Life Support) training. (Optional)	1 set

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Trade: Fitter(For 2nd Sem.)**List of Tools & Equipment**

1	Try Square 10 cm blade	05 nos.
2	Caliper 15 cm Hermaphrodite	06 nos.
3	Divider 15 cm spring	06 nos.
4	Straight scribe 15 cm	05 nos.
5	Screw Driver 15 cm	05 nos.
6	Chisel cold Flat 12mm	06 nos.
7	Hammer ball pane 0.45 kg with handle.	05 nos.
8	Hammer bal pane 0.22 kg with handle	05 nos.
9	File Flat 25 cm lnd cut	21 nos.
10	File Flat 25 cm lnd cut smooth.	21 nos.
11	File half round 15 cm lnd cut.	21 nos.
12	Hacksaw frame fixed 30 cm.	21 nos.
13	Safety goggles.	21 nos.
14	Dot punch 10 cm	10 nos.

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Tools Instrument & General Shop Out fit

1	Rule steel 30 cm to read metric	04 nos.
2	Rule steel 60 cm	04 nos.
3	Straight edge 45 cm steel	02 nos.
4	Surface Plate 45x45 cm Cl/granite	02 nos.
5	Table for surface plate	02 nos.
6	Universal scribing block 22 cm	02 nos.
7	V- block pair 7 cm and 15 cm with clamps	02 nos.
8	Square adjustable 15 cm blade	02 nos.
9	Angle plate 10x20 cm	02 nos.
10	Level spirit 15cm metal	01 no.
11	Punch letter 3mm set	01 no.
12	Punch number set 3mm	01 no.
13	Punch hollow 6 mm to 19 set of 5	02 nos.
14	Punch round 3 mm x 4 mm set of 2	02 nos.
15	Portable hand drill (electric) Oto 6 mm	02 nos.
16	Drill twist s/s 1.5 to 12 nun by 0.5 mm	01 Set
17	Drill twist s/s 8 mm to 15 mm by 1/2 mm	01set
18	Taps and dies complete set in box B. A	01 no.
19	Taps and dies complete set in box width-worth	01 no.
20	Taps and dies complete set in box 3-18 mm set of 10	01 no.
21	Warding File 15 cm smooth	04 nos.
22	Knife edge File 15 cm smooth	04 nos.
23	File cant saw 15 cm smooth	04 nos.
24	File feather edge 15 cm smooth	04 nos.
25	File triangular 15 cm smooth	02 nos.
26	File round 20 cm 2nd cut	08 nos.
27	File square 15 cm 2nd cut	04 nos.
28	File square 25 cm 2nd cut	04 nos.
29	Feeler gauge 10 blades	01 set
30	File triangular 20 cm 2nd cut	06 nos.
31	File flat 30 cm 2nd cut	06 nos.
32	File flat 30 cm bastard	06 nos.
33	File Swiss type needle set of 12	02 set
34	File half round 25 cm bastard	04 nos.
35	File round 30 cm bastar	04 nos.
36	File Card	06 nos.
37	Stone oil 15 cm x5 cm x2.5 cm	04 nos.
38	Stone carborandum 15 cm x 5 cm x 5 cm x 4	02 nos.
39	Oil Can 0.25 liters	02 nos.
40	Pliers combination 15 cm	02 nos.
41	Vice grip pliers	02 nos.
42	Blow lamp 0.55 liters	02 nos.
43	Spanner Metric—D.E.set of 10 pcs	06 nos.

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44	Spanner adjustable 15 cm	02 set
45	Interchangeable ratchet socket set with a 12 mm driver, sized 10-32 mm set of 18 socket and attachments	01 set
46	Box spanner se 6-25 mm set of 8 with Tommy bar.	01 set
47	Clamp toolmaker 5 cm and 7.5 cm set of 2	02 nos.
48	Clamp "c"5 cm	02 nos.
49	Clamp "c"10 cm	02 nos.
50	Hand reamer adjustable cover max 9,12,18mm-set of 3	01 set
51	Hand reamer taper 4-9mm set of 6or 4-7mmset of 4	01 set
52	Reamer parallel 12-16mm set of 5	01 no.
53	Scraper flat 15cm	06 nos.
54	Scraper 3 corner 15 cm	06 nos.
55	Scraper half round 15 cm	06 nos.
56	Chisel cold 9 mm cross cut 9 mm diamond	06 each
57	Chisel cold 19 mm flat	06 nos.
58	Chisel cold 9 mm round nose	06 nos.
59	Extractor stud EZY-out	02 nos.
60	Set combination 30 cm	02 nos.
61	Micrometer 0-25mm out side	03 nos.
62	Micrometer 25-50mm out side with 25mm test piece	03. nos.
63	Micrometer 50-75fun out side with 50mm test piece	02 nos.
64	Micrometer in side 25-50mm	01 no.
65	Vernier caliper 20 cm	03 nos.
66	Vernier height gauges 30 cm	01 no.
67	Vernier bevel protractor	01 no.
68	Screw pitch gauge	01 no.
69	Wire gauge, metric standard	01 no.
70	Drill twist T/S 6mm to 25 mmx1.5	01set
71	Drill chuck 12mm	01 no.
72	Pipe wrench 40cm	01 no.
73	Pipe wrench 30 cm	01 no.
74	Pipe vice 100mm	02 nos.
75	Adjustable pipe tape set BSP with die set cover pipe size 15,20,25,32,38,50 mm	01 no.
76	Wheel dresser (1 for 4 units)	01 no.
77	Machine vice 10cm	01 no.
78	Machine vice 15cm	01 no.
79	Sleeve drill morse 0-1,1-2,2-3	01 set
80	Bench Vice 12cm jaws	20 nos.
81	Leg Vice 10cm jaw	02 nos.
82	Fire Extinguisher	02 nos.
83	Fire Buckets	02 nos.
84	Wing Compass 25.4cm or 30cm	02 nos.
85	Hand Hammer 01KG with handle	02 nos.

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86	Gauge slip as Johnson metric set	01 set
87	Carbide wear block 0 lmm-02mm	02 each
88	Gauge snaps Go and No Go 25 to 50mm by5mm set of 06pcs.	01 set
89	Gauge pluge single ended 05 to 55 by 5mm set of 1 1pcs.	01 set
90	Gauge Telescopic up to 150mm	01 no.
91	Radius Gauges(Asorted)	10 nos.
92	Dial Test Indicator .0 l mm with magnetic stand	01 no.
93	Sine bar 125mm	01 no.
94	Sine bar 250mm	01 no.
95	Lathe Tools HSS Tiped set	02 nos.
96	Lathe Tools Bit 6mm,8mm,10mmx100mm	10 each
97	Counter Boring and Counter sinking Tool	02 nos.
98	Arm strong type bit holder RH	02 nos.
99	Arm strong type bit holder LH	02 nos.
100	Arm strong type bit holder Straight	02 nos.
101	Pipe cutter 6 mm to 50 mm wheel type	01 no.
102	Adjustable Spanner 38 cm long	01 no.
103	Dial Vernier Caliper 0-200mm LC00.05MM (Universal type)	01 no.
104	Vernier Micrometer 0-50 mm	01 no.
105	Depth Micrometer 0-100mm,0.01mm	01 no.
106	Vernier Caliper 150mm LC 0.02MM	01 no.
107	Comparators Stand With Dial Indicator LC0.01mm	01 no.
108	Engineers Try Square (Knife wedge) 150mm Blade.	01 set
109	Surface Roughness comparison plates N1-N12Grade	01 no.
110	Digital Vernier Caliper 20cm	01 no.
111	Digital Outside Micrometer 0-25mm	01 no.
112	Digital Dial Test Indicator	01 no.

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LIST OF MACHINES, EQUIPMENTS FOR THE TRADE

1	SS and SC centre lathe (all geared) with having minimum specification as: centre height 150 mm and centre distance 1000 mm along with 4 jaw and 3 jaw chucks, auto feed system, safety guard, motorized coolant system and lighting arrangement	02 nos
2	Drilling Machine pillar type 0 - 20mm capacity with drill chuck & key	02 nos
3	Pedestal Grinder Double End type. Wheel 300x40x50.8mm Wheel centre distance 650 mm approx. Power of motor 1HP	02 nos.
4	Hydraulic Power Saw Machine suitable for minimum 375mm length blade.	01no.
5	Brinell hardness testing machine having diamond indenter	01no

Trade: Electrician

ANNEXURE-I

National Institute for Training of Trainers
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Trade: Electrician (For 1st Sem.)

LIST OF TOOLS & EQUIPMENTS

1	Steel Tape, 10 mtr length	20 Nos.
2	Plier Insulated, 150 mm	20Nos.
3	Plier Side Cutting, 150 mm	20 Nos.
4	Screw Driver, 100 mm	20 Nos.
5	Screw Driver, 150 mm	20 Nos.
6	Electrician Connector, screw driver insulated handle thin stem, 100 mm	20 Nos.
7	Heavy Duty Screw Driver , 200 mm	20 Nos.
8	Electrician Screw Driver thin stem insulated handle, 250 mm	20 Nos.
9	Punch Centre , 150 mm X 9 mm	20 Nos.
10	Knife Double Bladed Electrician	20 Nos.
11	Neon Tester	20 Nos.
12	Steel Rule 300 mm	20 Nos.
13	Hammer, cross peen with handle	20 Nos.
14	Hammer, ball peen With handle	20 Nos.
15	Gimlet 6 mm.	20 Nos.
16	Bradawl	20 Nos.
17	Scriber (Knurled centre position)	20 Nos.
18	Pincer 150 mm	20 Nos.
19	Wire Stripper	20 Nos
20	Tennon Saw 250 mm	20 Nos
22	Firmer chisel wood 12mm	20 Nos

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Trade: Electrician (For 1st Sem.)

1	C- Clamp 200 mm, 150 mm and 100 mm	2 Nos each
2	Spanner Adjustable 150 mm, 15 degree	2 Nos
3	Blow lamp 0.5 ltr	2Nos
4	Melting Pot	1No
5	Ladle	2Nos
6	Chisel Cold firmer 25 mm X 200 mm	2 Nos
7	Chisel 25 mm & 6 mm	4 Nos each
8	Hand Drill Machine 0 to 6 mm capacity	1No
9	Portable Electric Drill Machine 6 mm capacity	1No
10	Pillar Electric Drill Machine 12 mm capacity	1No
11	Allen Key	1 set
12	Oil Can 0.12 ltr	2 Nos
13	Grease Gun	1 No
14	Out Side Micrometer 0 to 25 mm	1No
15	Motorised Bench Grinder	1No
16	Rawl plug tool & bit	2 set
17	Pully Puller 3 legs 250 mm adjustable	2Nos
18	Bearing Puller 3 legs 120 mm flexible	2Nos
19	Hydrometer	2 set
20	Thermometer 0 to 100 deg Centigrade	1 No
21	Scissors blade 150 mm	4 Nos
22	Crimping Tool	1 set
23	Crimping Tools Heavy duty	2 Nos
24	Chisel Cold flat 12 mm	2 No
25	Mallet hard wood 0.50 kg	4 No
26	Hammer Exeter type 0.40 kg	8 nos
27	Hacksaw frame 200 mm 300 mm adjustable	4 Nos
28	Try Square 150 mm blade	4 Nos
29	Outside & Inside Divider Calliper	2 Nos each
30	Pliers flat nose 100 mm	4 Nos
31	Pliers round nose 100 mm	4 Nos
32	Plier longnose 150 mm	4 Nos
33	Tweezers 100 mm	4Nos
34	Snip Straight & Bent 150 mm	2 Nos each
35	Spanner D.E. metric standard	4 Nos
36	Drill hand brace 0 to 100 mm	4 Nos
37	Drill S.S. Twist block 2 mm, 5 mm 6 mm set of 3	4 set
38	Plane, smoothing cutters 50 mm	4 Nos.
39	Gauge, wire imperial(SWG)	4 Nos
40	File flat 200 mm 2nd cut	8 Nos.
41	File half round 200 mm 2nd cut	4 Nos
42	File round 200 mm 2nd cut	4 Nos.
43	File flat 150 mm rough	4 Nos.

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44	File flat 250 mm bastard	4 Nos.
45	File flat 250 mm smooth	4 Nos.
46	File Rasp, half round 200 mm bastard	4 Nos.
47	Soldering Iron 25 watt, 65 watt, 125 watt	4 Nos each
48	Copper bit soldering iron 0.25 kg.	4 Nos.
49	De soldering Gun	4 Nos
50	Hand Vice 50 mm jaw	4 Nos
51	Table Vice 100 mm jaw	8 Nos.
52	Pipe Cutter to cut pipes upto 5 cm. dia	2 Nos.
53	Pipe Cutter to cut pipes above 5 cm dia	1 No.
54	Stock and Die set for 20 mm to 50 mm G.I. pipe	1 No.
55	Ohm Meter; Series Type & Shunt Type	1 No. each
56	Stock and Dies conduit	4 Nos
57	Multi Meter (analog) 0 to 1000 M Ohms, 2.5 to 500 V	1 No
58	Digital Multi Meter 3 ½ digit	8 Nos
59	A.C. Voltmeter M.I. 0 –500V A.C	1 No
60	Milli Voltmeter	6 Nos
61	D.C. Milliammeter 0 -500m A (Digital+ Analog)	1 No.
62	Ammeter MC 0-1A, 0-5 A, 0- 25 A	1 No.
63	A.C. Ammeter	2 Nos each
64	A.C. Ammeter M.I 0-10 -20 A, 0-15-25 A	2 Nos each
65	Kilo Wattmeter 0-5 kw (CC-0-5-10 A,PC-0-250-500V)	2 Nos
66	A.C. Energy Meter,Single phase 5 amp. Three Phase 15 amp	2 Nos
67	Power Factor Meter single phse-230 volt (Analog+ Digital)	1 No each
68	Frequency Meter (Analog+Digital)	1 No each
69	Tachometer with stop watch (Analog + Digital)	1 No each
70	Current Transformer Primary-0-10-20 A, Sec- 5 A)	2 Nos
71	Potential Transformer(0-230-400V/110V)	2 Nos
72	Growler Internal+ External	1 No each
73	Tong Tester / Clamp Meter 0 – 100 amp. AC Analog+ Digital)	1No
74	Megger 500 volts	1No
75	Wheat Stone Bridge with galvanometer & battery	1No
76	Earth Tester 0-30 Ohm	2 No
77	Contacto & auxiliary contacts 3 phase, 440 volt, 32 amp.	1 No each
78	Load Bank5 KW(Lamp / heater Type)	1No
79	Brake Test arrangement with two spring balance 0 to 25 kg rating	2 set
80	DC Power Supply 0-440v , 15A	2 No
81	Inverter- 1 KVA with 12 V Battery Input- 12 volt DC, Output- 220 volt AC	1No
82	Voltage Stabiliser Input: 150 – 230 volt AC, Output: 220 volt AC , 1 KVA	1 No
83	Rheostat, 0 -1 Ohm, 5 Amp, 0 -10 Ohm, 5 Amp, 0- 25 Ohm, 10 Amp, 0- 300 Ohm, 3 Amp,	2 Nos. each
84	Flux meter	2 Nos
85	Laboratory Type Induction Coil	1 no

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1	Used DC Generators-series, shunt and compound type for overhauling practice	1 Set
2	3- point D.C. Starter	2 Nos
3	4- point D.C. Starter	2 Nos
4	D.C. Shunt Generator with control panel, 2.5 KW, 230 V	1No
5	D.C. Compound Generator with control panel including fitted rheostat, voltmeter, ammeter and breaker,2.5 KW, 230 V	1No
6	DC Series Motor coupled with mechanical load 0.5 to 2 HP, 220 Volts	1No
7	DC Shunt Motor 2 to 3 HP, 220 volts	1No
8	DC compound Motor with starter and switch 2 to 3 HP, 220 volts	1No
9	Single phase Transformer, core type, air cooled	3Nos
10	Three phase transformer, shell type oil cooled	1No
11	Variable Auto Transformer	1No
12	Oscilloscope Dual Trace,30 MHZ	1No
13	Function Generator	1No
14	Discrete Component Trainer	1No
15	Linear I.C.Trainer	1No
16	Digital I.C.Trainer	1 No
17	Bath Impregnating	1 No
18	Oven Stove	1 No
19	Oil Testing Kit	1 No
20	Battery Charger	1 No
21	Hygrometer	1 No

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Trade: Electrician (For 2nd Sem.)**LIST OF TOOLS & EQUIPMENTS**

1	Steel Tape, 10 mtr length	20 Nos.
2	Plier Insulated, 150 mm	20Nos.
3	Plier Side Cutting, 150 mm	20 Nos.
4	Screw Driver, 100 mm	20 Nos.
5	Screw Driver, 150 mm	20 Nos.
6	Electrician Connector, screw driver insulated handle thin stem, 100 mm	20 Nos.
7	Heavy Duty Screw Driver , 200 mm	20 Nos.
8	Electrician Screw Driver thin stem insulated handle, 250 mm	20 Nos.
9	Punch Centre , 150 mm X 9 mm	20 Nos.
10	Knife Double Bladed Electrician	20 Nos.
11	Neon Tester	20 Nos.
12	Steel Rule 300 mm	20 Nos.
13	Hammer, cross peen with handle	20 Nos.
14	Hammer, ball peen With handle	20 Nos.
15	Gimlet 6 mm.	20 Nos.
16	Bradawl	20 Nos.
17	Scriber (Knurled centre position)	20 Nos.
18	Pincer 150 mm	20 Nos.
19	Wire Stripper	20 Nos
20	Tennon Saw 250 mm	20 Nos
21	Firmer chisel wood 12mm	20 Nos

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SHOP TOOLS, INSTRUMENTS & MACHINERY

1	C- Clamp 200 mm, 150 mm and 100 mm	2 Nos each
2	Spanner Adjustable 150 mm, 15 degree	2 Nos
3	Blow lamp 0.5 ltr	2Nos
4	Melting Pot	1No
5	Ladel	2Nos
6	Chisel Cold firmer 25 mm X 200 mm	2 Nos
7	Chisel 25 mm & 6 mm	4 Nos each
8	Hand Drill Machine 0 to 6 mm capacity	1No
9	Portable Electric Drill Machine 6 mm capacity	1No
10	Pillar Electric Drill Machine 12 mm capacity	1No
11	Allen Key	1 set
12	Oil Can 0.12 ltr	2 Nos
13	Grease Gun	1 No
14	Out Side Micrometer 0 to 25 mm	1No
15	Motorised Bench Grinder	1No
16	Rawl plug tool & bit	2 set
17	Pully Puller 3 legs 250 mm adjustable	2Nos
18	Bearing Puller 3 legs 120 mm flexible	2Nos
19	Hydrometer	2 set
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21	Scissors blade 150 mm	4 Nos
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66	A.C. Energy Meter,Single phase 5 amp. Three Phase 15 amp	2 Nos
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68	Frequency Meter (Analog+Digital)	1 No each
69	Tachometer with stop watch (Analog + Digital)	1 No each
70	Current Transformer Primary-0-10-20 A, Sec- 5 A)	2 Nos
71	Potential Transformer(0-230-400V/110V)	2 Nos
72	Growler Internal+ External	1 No each
73	Tong Tester / Clamp Meter 0 – 100 amp. AC Analog+ Digital)	1No
74	Megger 500 volts	1No
75	Wheat Stone Bridge with galvanometer & battery	1No
76	Earth Tester 0-30 Ohm	2 No
77	Contacto & auxiliary contacts 3 phase, 440 volt, 32 amp.	1 No each
78	Load Bank5 KW(Lamp / heater Type)	1No
79	Brake Test arrangement with two spring balance 0 to 25 kg rating	2 set
80	DC Power Supply 0-440v , 15A	2 No
81	Inverter- 1 KVA with 12 V Battery Input- 12 volt DC, Output- 220 volt AC	1No
82	Voltage Stabiliser Input: 150 – 230 volt AC, Output: 220 volt AC , 1 KVA	1 No
83	Rheostat, 0 -1 Ohm, 5 Amp, 0 -10 Ohm, 5 Amp, 0- 25 Ohm, 10 Amp, 0- 300 Ohm, 3 Amp,	2 Nos. each
84	Flux meter	2 Nos
85	Laboratory Type Induction Coil	1 no

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EQUIPMENTS & MACHINERY

1	Domestic Appliances-	
	a. Electric Hot Plate 1500 watt, 220v With temp. control	2 Nos
	b. Electric Kettle, 1750watts, 230v	2 Nos
	c. Electric Iron 1500 watts, 230v with temp. Control	2 Nos
	d. Immersion Heater 750/1000/1500 watt, 230V	2 Nos
	e. A.C. Fan 230v	2 Nos
	f. Geyser (Storage type) 25 ltr minimum, 230V	1 No
	g. Mixture & Grinder	2 Nos
	h. Microwave Oven 20 ltr convection	2 Nos
	i. Washing Machine 6.5 kg fully automatic	1 No
	j. Hair Drier	2 Nos
2	Electrical Machine Trainer – (COMMON FOR TT1 & TT 2) Suitable for demonstrating the construction and functioning of different types of DC machines and AC machines (single phase and three phase). Should be fitted with friction brake arrangement, dynamo meter, instrument panel and power supply unit	
3	Motor-Generator (AC to DC) consisting of : (COMMON FOR TT1 & TT 2) Squirrel Cage Induction Motor with star delta starter and directly coupled to DC shunt generator and switch board mounted with regulator, air breaker, ammeter, voltmeter, knife blade switches and fuses, set complete with case iron and plate, fixing bolts, foundation bolts and flexible coupling. Induction Motor rating: 7 HP, 400V, 50 cycles, 3 phase DC Shunt Generator rating: 5 KW, 440V	
4	Motor Generator (DC to AC) set consisting of - Shunt Motor with starting compensator and switch directly coupled to AC generator with exciter and switch board mounted with regulator, breaker, ammeter, voltmeter frequency meter, knife blade switch and fuses etc. Set complete with cast iron bed plate, fixing bolts, foundation bolts and flexible coupling Shunt Motor rating : 5 HP, 440V, AC Generator rating : 3-Phase, 4 wire, 3.5 KVA, 400/230 Volts, 0.8 pf, 50cycles	
5	Relays-	
	a. Cut out	1No
	b. Reverse current	1No
	c. Over current	1No
6	d. Under voltage	
	Starters for 2 to 5 H.P. A.C Motors-	
	a. Resistance type starter	1No
	b. Direct on line Starter	1No
7	c. Star Delta Starter-manual, semi-automatic and automatic	
	d. Auto Transformer type	
7	Thyristor /IGBT controlled D.C. motor drive with Techo -generator feedback arrangement. 2 HP	

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8	Thyristor /IGBT controlled A.C. motor drive with VVVF control 3 Phase, 2 HP	1 No
9	Diesel Generator Set with change over switch, over current breaker and water-cooled with armature, star-delta connections AC 3 phase, 5 KVA, 230 volt	1No
10	AC Squirrel Cage Motor with star delta starter and triple pole iron clad switch fuse. 2 to 3 HP, 3-phase ,400 volts, 50 cycles	2Nos
11	AC phase-wound slip ring Motor with starter and switch 5 HP, 400 volts, 3-phase, 50 cycles	1No
12	A.C. Series type Motor with mechanical load ¼ HP, 230V, 50 cycles	1No
13	Single Phase Capacitor Motor with starter switch 1 HP 230 volt 50 cycles	1No
14	Universal Motor with starter/switch 230 volt, 50 cycles ¼ HP	1No
15	Stepper Motor with Digital Controller	1No
16	Shaded Pole Motor	1No
17	Servo Motor with Control	1 No
18	Synchronous scope Meter	2 Nos
19	Phase Sequence Meter	2 Nos
20	Cut model of 3 phase induction motor	1 No
21	Cut model of watermill and hydro power	1 No each
22	Component of Typical small hydro power unit	1 set
23	Component of Typical water mill	1 set