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**MSME-TECHNOLOGY DEVELOPMENT CENTRE
(PROCESS AND PRODUCT DEVELOPMENT CENTRE, AGRA)**

Ministry of MSME, Govt. of India

Foundry Nagar, Agra

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Email: info@ppdcagra.in

TENDER NOTICE (E-Tender)

The tenders are invited under double bids system from interested manufacturer/Suppliers/Dealers for procurement of machinery/ equipment for the Institute.

The details of specifications, tender document, EMD etc, can be downloaded from central Public Procurement Portal (www.eprocure.gov.in/eprocure/app) & www.ppdcagra.dcmsme.gov.in. The last date of submission is 26.07.2021 by 12:00 P.M and to be opened on 27.07.2021 at 2:00 P.M at PPDC-Agra.

PRINCIPAL DIRECTOR

MSME-TECHNOLOGY DEVELOPMENT CENTRE
(Process & Product Development Centre)
Govt. of India Organization
Under
Ministry of Micro Small and Medium Enterprises
Foundry Nagar, Agra - 282006

NOTICE INVITING e-TENDER

MSME - Technology Development Centre, Ministry of MSME, Government of India, invites online bids under two bid systems (i.e. Technical e-Bid and Financial e-Bid) for supply of Machinery Items. The e-Bid shall be submitted online on www.eprocure.gov.in. The Tender is available on www.ppdccagra.dcmsme.gov.in. No hard copy of Bids shall be accepted in the office. All prospective Bidders may visit www.eprocure.gov.in. (Bidder's manual kit) before online submission of e-Bid.

TERMS AND CONDITIONS:

1. GENERAL

MSME- Technology Development Centre (PPDC), Agra, invites e-bids under Two Bid systems (Technical and Financial Bid) from Reputed Machinery Suppliers.

2. DETAILS OF e-BID:

Sr. No.	Particulars	Details
1.	Bid Reference	E-Tender No. PPDC/Machinery Items/2021-22
2.	Last Date and Time of receipt of Bid	26 th Jul 2021 by 12:00 PM
3.	Date and Time for opening of Technical Bid	27 th Jul 2021 by 2:00 PM
4.	Place of receiving the bid / communication	MSME-Technology Development Centre, (PPDC) Foundry Nagar, Agra-282006
5.	EMD	Rs.40,000/- for Mobile Repairing Kit and Rework Station. (Account Payee Demand Draft / Bankers Cheque) in favour of "Principal Director", PPDC, Agra
6.	Financial bid opening	Will be opened on same day on 27 th Jul 2021, after evaluation of Technical Bids.
7.	Tender Fee	Rs. 1000/- Non-Refundable (Account Payee Demand Draft / Bankers Cheque) in favour of "Principal Director", PPDC, Agra

3. SUBMISSION OF e-BIDS:

- a) E-Bids are invited in two Bid System. (1) Technical and (2) Financial and shall be submitted electronically (online) on www.eprocure.gov.in for supply of Machinery Items.
- b) E-Bids shall be submitted on or before last date 26th Jul 2021. **No Hard Copy of Bids will be accepted.**
- c) EMD of each Machinery Item given in the list of Machinery with Specification. in form of account Payee Demand Draft, Bankers Cheque in favor of “Principal Director”, PPDC, Agra, payable at Agra, shall be submitted in the office **before last date and time of submission**. The e-bids will be opened only those who have submitted EMD's on or before the schedule date and time. Technical e-Bids of all the received tender will be opened on pre scheduled date, time & venue.

4. ELIGIBILITY / QUALIFICATION CRITERIA FOR TECHNICAL BID

1. The Bidders shall have supplied similar type of goods/instrument/machines to any Govt. / Autonomous/reputed organizations. Recent Purchase orders are to be enclosed.
2. Tender fees & EMD as stated above shall be submitted. If those claim for Exemption should be provide Valid MSME / NSIC Certificate Relevant to Product to be apply.
3. All the bids will be evaluated purely on the basis of technical ground/ technical compliance statement by bidder, acceptance of payment terms, delivery terms, PBG clause, guarantee/ warranty clause, Training, Installation, calibration certification/ documentation, Inspection clauses check list & any Govt. policies/guidelines as & when applicable. The price/financial bids of only technically qualified/accepted bidders will be opened.
4. Country of Origin of Product apart from India, decision of acceptance of bid will be taken as per GFR guideline. Supplier should enclose the country of origin certificate along with Technical Bid.

GENERAL CONDITIONS/INSTRUCTIONS:

1. Bidders are advised to read & study the complete Tender documents carefully. Submission of Tender shall be deemed that bidder has read and understood all the terms & conditions of the tender and its implications and agrees and binds himself/themselves to the same. All pages of tenders should be signed by bidder and return with Technical Bid.
2. The bid should be submitted in three envelopes i.e (i)Tender Fees, EMD & Checklist as per Annexure II, (ii) Technical Bid with all terms & conditions, documents & catalogs etc (iii) Price/Financial bid
3. Tender/Offer/Bids should be in English language only and it should be valid as per Bid validity from the date of opening of tender and will be binding on you for specifications offered & the rate quoted. Rate must be quoted correctly & precisely in words as well as in figure along with currency.
4. Tender should be submitted only by the Original Equipment Manufacturers (OEM) / authorized dealers/representatives.
5. Technical Bid should contain of Technical compliance statement, catalogs, details technical literature, authority letter given by OEM, Letter of Bid etc with Tender number, name of item.
6. All other charges should be clearly mentioned otherwise offer will be deemed as Inclusive of all other charges. No hidden charges will be accepted after opening of financial bid.
7. The technical compliance statement as per Annexure I shall be duly filled signed & stamped by manufacturer or his authorized and responsible person of bidding firm as a noting and acceptance & shall be binding on you during the course of supply and upto completion of contract.
8. Technical Literature / Catalogues / Brochures, technical data sheet etc. for the particular quoted models should be enclosed to technical bid.
9. All tenders pages/Quotations should be properly typed and free from over-writing. Erasing, correction or additions etc. must be attested by authorized signatory.
10. Bidders should furnish their Bankers details, GST Registration number, HSN / SAC code, PAN no. etc.
11. Bidder should furnish the valid authority letter issued by OEM for quoting on his principal behalf.
12. Incomplete offer not in line with the terms & conditions, instructions of the Tender documents and offer received by fax or after due date & time will not be considered and liable to be rejected.

13. List of standard Accessories associated with the basic machine / instruments / goods should be properly described along with technical bid and cost of all standard and associated accessories should be included in basic machine cost.
14. Bidder shall specify whether the basic items quoted are capable to meeting the required specifications as per PPDC's technical requirement or any additional/optional & essential accessories are required. If required, then bidder should specify list of standard/essential/additional/optional accessories and list should be enclosed with technical bid for proper evaluation & prices should be indicated separately in Price Bid.
15. All the clauses governing the Tender documents and the Important Notice attached should be duly filled in & stamped & signed by authorised person of bidding firm.
16. PPDC, Agra reserve the right to seek clarification/ justification from the bidders on the offered technical specifications & the bid price in case the PPDC, Agra deems it necessary based as the justification provided by the bidder, if the PPDC, Agra feels that the price is unrealistic/infeasible in order to. PPDC, Agra reserves the right to reject the said bid. The bidders shall be governed by the decision of the client.
17. PPDC, Agra reserves the right to reject any or all offers without assigning any reason whatsoever. PPDC also reserves the right to accept any tender in whole or in part without assigning any reason whatsoever. Opening of tender is no commitment whatsoever and does not prejudice the aforesaid rights of the PPDC to reject any or all offers without assigning any reason or accept any tender in whole or in part without assigning any reason whatsoever.

Payment terms:

18. Advance payment terms are not acceptable, Payment will be provided after successful installation.
19. Mere participation in the tender and offering of lowest rates does not confer any right on any party for placing order on them.
20. All the disputes arising out of the contract shall be subject to Agra (UP) India Jurisdiction only.
21. Parties are required to affect supplies, commission and install the machinery/equipment/items at various locations and extend/maintain warranty/guaranty commences from the date of completion of installation/commissioning and training.
22. All the matters concerned to and not covered herein above, the decision of Principal Director, PPDC, Agra shall be final and binding on the parties.
23. The equipment offered shall be strictly conforming to specification or better and for complete unit correct accuracies and standard.
24. The Principal Director, PPDC, Agra reserves the option of inspecting the goods by our own representative at suppliers works prior to Packing and Dispatch or by third party appointed by us. However the supplier should furnish the inspection report of the

equipment prior to inspection by PPDC representative. Supplier shall provide all facilities for carrying out the inspection. However the final inspection will be carried at PPDC, Agra. Inspection Charts and guarantee certificate of quality should be provided along with the material.

25. Training either at suppliers work or at any other place shall be to the suppliers account.
26. Supplier must enclose in technical bid their offer list of customer (with their full address and their purchase reference no.) to whom they have made similar supplies in the past five years. The date of supply should also be indicated.
27. The supplier should also mention the nearest service Centre of the equipment/machines for servicing/repairing after commissioning.
28. The equipment should be complete in all respect.

Guarantee:

1. The supplier shall furnish guarantee in respect of material and manufacturing defect in machine/equipment, performance at least for period of 12 months (one year) from the date of commissioning and installation, Any defect notified during this period shall be rectified free of cost which include replacement of part or in full as needed.

Bid Validity:

Bids should be valid for minimum 90 days from the date of opening of tender and will be binding on you for specifications offered & the rate quoted. Rate must be quoted correctly & precisely in words as well as in figure along with currency.

Late delivery charges:

1% per month to a maximum of 5% of the order value for any delay beyond agreed delivery schedule from the date of Purchase Order. PPDC reserve the right to cancel the order or a part thereof in case of delay beyond the 3 months forfeiting the EMD.

Termination of Contract:

On acceptance of tender, if the successful bidders is failure to deliver the goods within the accepted delivery period or as extended or at any time repudiates the contract before the expiry of such period the purchaser may without prejudice to their other rights may cancelled the contract.

Purchase Preference Policy Linked with Local Content (PP-LC) As per Revised Order 2017 Dates 04.06.2019.

Under the purchase Preference Policy linked with Local Content (PP-LC), the bidder or service providers are allowed to avail the purchase preference linked with attaining stipulated Local Content.

Tender Inviting Authority reserves the right to allow the bidders or manufacturers or service providers, purchase preference as admissible under the Public procurement (Preference to make in India), Order 2017-Revision policy, subject to their complying with the requirements/conditions defined herein and submitting documents required to support the same.

Local Content: Local content means the amount of value Added in India which shall unless otherwise prescribed by the nodal ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

The bidder claiming the PP-LC benefit shall be required to furnish a self-certification on bidder's letter head indicating percentage of local content and confirming that the item offered meets the local content requirement for "class I local bidder /Class II local bidder" as the case may be and this undertaking shall be certified by the authorized signatory of the bidder signing the bid giving the details of the locations at which the local value addition is made.

The onus of submission of appropriately certified documents lies with the bidder and the purchaser shall not have any liability to verify the content and will not be responsible for the same.

However, in case the procuring authority has any reason to doubt the authenticity of the local content, it reserves the right to obtain the complete back up calculations before award of order failing which the bid shall be rejected.

False declarations will be in breach of the code of Integrity under Rule 175(1)(i)(h) of the General Finance Rules for which a bidder or its successors can be debarred for up to two years as per rule 151(iii) of the General Finance Rules along with such other actions as may be permissible under law.

CALCULATION OF LOCAL CONTENT-GOODS (Below Calculation is indicative only) for detail rule, order no P-45021/2/2017-PP (BE-II) dated 04.06.2020 issued by Ministry of Commerce and Internal Trade (public procurement section) may please be referred.

Total Basic Cost of Goods/Machine (W.O. Tax) = a.

Total value of all the imported content used in construction of above Machinery/Goods (Including custom duty) = b

% Local Content= $((a-b)/a) \times 100$

(OFFICE SEAL)

(SIGNATURE OF AUTHORIZED PERSON)

NAME :

DESIGNATION :

DATED :

PART – II

ANNEXURE-II

(To be submitted by Bidder on Letter head along with Technical Bid)

Declaration of Local Content by Bidder

Name of Bidder :

Name of Machine / Model :

Manufacturer of Machine :

I/ We hereby declare that in above quoted Machine / Goods, Local Content is-----

% as per order no P-45021 /2/2017-PP (BE-II) dated 04.06.2020 issued by Ministry of Commerce and Internal Trade (public procurement section) Govt. of India.

(Signature of the Bidder, with Official Seal)

PART-I

ANNEXURE-II

(To be submitted by Bidder on Letter head along with Technical Bid)

Certificate regarding Compliance of GFR Rule 144(xi)

I have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India. I certify that This/My/Our firm is not from such country or, from such country, has been registered with the Competent Authority. I hereby certify that this firm fulfills all requirements in this regard (GFR rule No. 144-xi) and is eligible to be considered. (Where applicable valid registration certificate by the Competent Authority to be attached)

(Signature of the Bidder, with Official

Seal) Name of Firm :

(Letter of Bid)

(To be print on bidders letter head)

To,

The Principal Director,

MSME Technology Development Centre (PPDC) Agra,

Foundry Nagar, Agra – 282 006.

Dear Sir,

I / We agree, on acceptance of the tender in whole or in part, to supply to MSME TECHNOLOGY DEVELOPMENT CENTRE, AGRA (Process and Product Development Centre), Agra 282 006, India the machine / equipment / goods and accessories, detailed in Technical Bid (Part-I) of the Tender enclosed herewith at prices quoted by me / us in Price Bid (Part-II) of the Tender which is also enclosed herewith in a sealed cover marked Price Bid (Part- II)'. I / We agree to hold the offer open for 90 days from the due date. I / We have read and understood the terms and conditions of the tender documents which shall become Contract on acceptance of tender, and agree to be governed by the same. I / we specifically undertake that I / We will not resile from my /our offer or modify the terms and conditions thereof

Authorized Signature & Seal of Tenderer

Place :

Name :

Date :.....

Designation :.....

WITNESS Name & Address of the

firm : Signature :

Name :

Designation:

Name & Address of the firm:

ANNEXURE-III

BIDS FROM DEALERS/AGENTS WITHOUT LETTER OF AUTHORITY FROM THE ORIGINAL EQUIPMENT MANUFACTURERS ARE LIABLE TO BE SUMMERILY REJECTED.BIDS NOT ACCOMPANIED BY EMD SHALL BE REJECTED.

CHECK LIST

(to be duly filled by bidder & to be submitted along with Technical Bid)

S.No.	Particulars	Answer Ref.Page
1.	Have you submitted Earnest Money Deposit (EMD)	Yes/No
2.	Have you furnished a authority letter from OEM	Yes/No
3.	Have you returned/submitted tender documents duly filled, Yes/No signed stamped by authorized person of bidding firm	Yes/No
4.	Have you furnished catalogues/ Boucher of quoted items	Yes/No
5.	Have you furnished bankers details/ GST/HSA/SAC/PAN no. etc	Yes/No
6.	Have you furnished technical specifications compliance statement	Yes/No
7.	Have you quoted delivery period correctly and precisely	Yes/No
8.	Have you kept your offer valid for 90 days	Yes/No
9.	Have you quoted your rates in figure and words (in price bid)	Yes/No
10.	Have you agreed for PBG clause	Yes/No
11.	Have you agreed for payment clause	Yes/No
12.	Have you agreed for warranty/Inspection/Training clause	Yes/No
13.	Have you agreed for calibration certification/documentation clause	Yes/No
14.	Have you provided list of customers alongwith purchase order to whom Model/Items have been supplied. (Pl. Encl. P.O. copy to Tech. Bid.)	Yes/No
15.	Have you agreed for arbitration clause	Yes/No
16.	Have you provide details of country of origin of item, Yes/No Gross/Nett weight of shipment, Dimensions of shipment (LxHxW), Name & complete address of firm for order placement etc	Yes/No

1. Technical Specification of Mobile Repairing Kit and Rework Station:

A. Mobile Repair Workbench

An integrated mobile repair workbench consisting of instrument panel and working table should be suitable for students to learn and perform various experiments related to mobile repair. Instruments should be fitted in the panel such that only front panel and necessary interfaces are easily accessible to use. Structure of workbench should be made up of 1.5 mm thick CRC powder coated pipes with top made up of good quality 19 mm thick plywood and covered with 1.8 mm off white colour mica. The bench working area should be covered by 2 mm thick antistatic mat which helps students to control static discharge as static causes interference or damage to students, equipment and circuitry. There should be demonstration / training at consignee end on how to use Workbench and utilization of this bench for various applications.

Structure and design of Workbench should follow the below specifications:

- The basic structure should be made of 38 x 38 x 1.5 mm CRC powder coated pipes for sturdiness.
- The overall dimensions of Workbench should be not less than W = 1200 mm; D = 750 mm; H = 1150 mm
- MS drawers 03 numbers W = 275 mm; D = 375 mm; H = 100 mm and thickness 1.2mm with handle & separate lock on each drawer should be provided
- For the panel section, raised back height of 1200mm from floor with matching height support from the side at a depth 500mm for instrument housing with a MS Panel strip below it for housing Electrical Sockets and Switches for external use.
- Two Pole MCB (32A – Havells / Siemens) to be provided for safety of Workbench
- There should be provision to mount main / mother training and development platform on front panel along with the instruments for easy performing the experiments which should provide visibility for the students working in a group.
- Workbench should work on Mains Supply - 230V AC, 50 Hz

Technical specifications of instruments and facility to be installed on the Workbench should be as under:

Workbench should have the following key features:

1. 50MHz Four Channel Digital Storage Oscilloscope
2. Dual DC Programmable Power Supply, 2X30V, 2Amp
3. Digital IC Tester
4. Multimeter
5. Digital LCR Meter
6. BGA Rework Station
7. LCD Separator Machine
8. SMD Technology Kit
9. Mobile Phone Trainer

Sl No	PPDC Requirement			Supplier Specification
	Item Name	Description	Qty Required	
1	Digital Storage Oscilloscope	50MHz 4 analog channel Digital Storage oscilloscope should support 1GSa/s sampling for analog channel, Memory Depth should be minimum 20 Mpts, vertical range 1mV/div -10V / div, horizontal range 5ns/div to 50 s/div, the instrument should have interface like RS232/UART, I2C, SPI for protocol analysis, it should also have at least 26 nos automatic measurements and 6 bits hardware counter, advance and multi triggering facility, 7 inches WVGA TFT Display, I/O USB, LAN and real time waveform monitoring PC Software. Math functions like A+B, A-B, A×B, A/B, FFT, A&&B, A B, A^B, !A, Intg, Diff, Sqrt, Lg, Ln, Exp, Abs.	01 no	
2	0-30V - 3A Dual output DC Power Supply	<ul style="list-style-type: none"> • Pre-Regulator based design • Floating DC Supply voltages • Dual DC : 2 x 0 - 30 V/ 3 A • Automatic Overload Current Protection 	01 no	

		<ul style="list-style-type: none"> • Constant Voltage & Constant Current Operation • Digital Display for Voltage and Current • Adjustable Current Limiter • Excellent Line & Load Regulation • Low Ripple Voltage 		
3	Handheld Digital IC Tester	<ul style="list-style-type: none"> • Easy-operating Tester, particularly be designed for the Digital IC • Small, portable, light and power-saving, usable with batteries • Average search time: 0.8 second • Display: 16 characters in 1 line • Test Pins: 14 to 24 pins • Tester voltage: +/-5V • Equipped with empty-load test, and the function of Auto Power Off <p>It should have following Specifications :</p> <p>Temperature : +5 C to +45C</p> <p>Humidity : up to 90% no condensing</p> <p>Altitude : up to 5000</p>	01 no	
4	Digital Multi meter (3 ¾ digit) , 4000 Counts	<p>Features :</p> <p>LCD Display, 4000 counts ,Auto operation, Diode test, Triode test, Continuity test, Low Battery indication, Data hold,Auto power off, Function protection, Shock protection, Relative value measurement, Frequency / Duty measurement Measure AC, DC Voltage & AC, DC Current, Resistance, Capacitance, Temperature, Frequency.</p> <p>Technical Specifications:</p> <p>DC Voltage range: 400mV, 4V, 40V, 400V, 1000V</p> <p>DC Current range: 400microA,</p>	01 no	

		<p>4000microA, 40mA, 400mA,10A</p> <p>AC Voltage range :400mV,4V,40V , 400V, 750V</p> <p>AC Current range : 400microA, 4000microA, 40mA, 400mA,10A</p> <p>Resistance range :400ohm, 4Kohm, 40Kohm, 400Kohm, 4Mohm, 40Mohm</p> <p>Capacitance range:4nF, 40nF, 400nF, 4microF, 200microF</p> <p>Frequency : 100Hz, 1000Hz, 10kHz, 1MHz, 30MHz</p> <p>Temperature – 40 Deg C to 100 Deg C</p> <p>Input Impedence – 10M ohm</p> <p>Sampling Rate – 3s</p> <p>AC Frequency Response – 40 – 400 HZ</p> <p>Power Requirement – Bettery AA, 1.5 V x 2 nos</p> <p>Standard Accessories – Probs, Batteries and Instruction Manual</p>		
5	LCR Meter (Digital) Handheld	<p>Measurement Function: Test Parameter - L - Q, C - D, R - Q, Z - Q</p> <p>Equivalent Circuit – Series and Parallel</p> <p>Ranging Mode – Auto, Hold</p> <p>Trigger Mode – Internal</p> <p>Correction Function – Open/ short Multi frequency zeroing</p>	01 no	

		<p>Measurement Terminals – Five Terminals</p> <p>Display Mode – Direct</p> <p>Display – LCD with Back Light</p> <p>Test Signal:</p> <p>Signal Frequency – 100 Hz, 120 Hz, 1 KHz</p> <p>Output Impedance – Varied with diff Range</p> <p>Signal Level – 0.3 VRMS</p> <p>Measurement Display Range:</p> <p>IZI,R – 0.001Ω-99.999MΩ</p> <p>C - 0.1pF - 99999μF</p> <p>L - 0.1H - 9999H</p>		
6	BGA Rework Station	<ul style="list-style-type: none"> • Adopted with Linear slider, so all the three axles (X, Y, and Z) can do fine tuning and quick orientation with perfect positioning accuracy and speedily maneuverability • Equipped with touch panel interface and PLC controlling to ensure it work stably and reliably. And it can storage multiple temperature profiling data of users. With password protection and modification function while power on. The temperature profiles will be displayed on the touch screen • The hot air nozzle can be rotated in 360 degree, the IR heater in the bottom can heat up the PCB board uniformly. • It has Passed CE certificate. It is equipped with emergency stop switch and protection equipment to power off <p>Technical Specifications</p> <ul style="list-style-type: none"> • Total Power 4800W • Upper Heating Power 800W • Lower Heating Power Second zone:1200W, Third zone: IR 2700W • Locating Mode V-shape card slot, PCB holder can be adjustable by X and Y axes with universal jigs. • Temperature Controlling K-type thermocouple closed loop control, independent temperature control, precision up 	01 no	

		<p>to ± 3 degree</p> <ul style="list-style-type: none"> • PCB Size Max 420*370mm, Min 10*10mm • Electrical Material High sensitive temperature control module, Delta PLC, Touch • Power Supply AC 110V/220V\pm10% 50/60HZ 		
7	LCD Separator	Manual separator LCD touch screen separating with built in vacuum pump for mobile pump	01 no	
8	SMD Technology Kit	<ul style="list-style-type: none"> • SMD Identification Board • The user should familiarized with different SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC's packages • Proto Boards are special PCB's with readymade solder pads for various SMD components & IC's, which makes the soldering much easy It includes Through Hole, SOP, Chip Scale package Proto Boards • SMD Soldering Jig • SMD Soldering Iron for soldering practice • A variable temperature controlled soldering iron is supplied with lead • SMD components are supplied for solder practice ie, Resistor, Capacitor, Diode, Transistors <p>Tweezers for Holding & placing of SMD components</p>	01 no	
9	Mobile phone Trainer	<p>Should have 5" (1920 x 1080) Touch screen full HD display, Supports to 4G VoLTE (Cat 4), 3G (UMTS/HSPA+), 2G (GSM/EDGE) Networks, Should have Android based application development & IoT related application development, should have complete block diagram of a 4G Dual SIM VoLTE Smart Phone on-board</p> <p>It should have following Technical Specification</p> <p>Should supports Cellular system : GSM - Band (2 / 3 / 5 / 8); WCDMA - Band (1 / 2 / 5 / 8); 4G VoLTE (TDD) - Band (38 / 40 / 41),</p> <p>LTE (FDD) - Band (1 / 3 / 5 / 7 / 8 / 20) having Tx/Rx Frequency band : GSM/GPRS/EDGE (850, 900, 1800, 1900 MHz), Internet connectivity : 4G, 3G, Wi-Fi, EDGE, GPRS,</p>	01 no	

		<p>Output power : +5... +33dBm/3.2mW... 2 W, should have Android Nougat 7.0 OS with Qualcomm Snapdragon 430 system architecture having Octa Core Processor & 1.4 GHz Processor clock speed,should have the 16GB & 3 GB Internal storage & RAM respectively and expandable memory upto 128 GB via Micro SD. Should have Bluetooth (BR/EDR+BLE 4.2),Wifi (802.11 b/g/n Dual band (2.4GHz & 5GHz)),GPS,OTG,location services,map support. Should 12 MP or more Primary camera , 5MP Secondary camera, should have following sensors : Fingerprint reader, Accelerometer, Gyroscope, Ambient Light, Proximity, Gravity, Vibrator, should have Smart Dual SIM, Dual stand</p> <p>By, 40 or more test points,20 or more Switched fault, 100 - 260V AC, 50/60 Hz power supply,</p> <p>On-board section : Battery Assembly, Power,Management Unit, Charging Circuit, Touch Display, Dual SIM Interface, User Interface</p> <p>User interface : Buzzer, Vibrator, Mic, Speaker, Hands free port and display LEDs</p> <p>It should be able to perform following experiment</p> <ul style="list-style-type: none"> • Real time study and operation of Smart Phone • Tx IQ/ Rx IQ signals and their constellation • Power Management Unit • Battery and Battery charging phenomena • User Interface section: Buzzer, Vibrator, MIC/Speaker, Hands fre • Dual SIM interface section, SIM card detection,Touch Screen display section,Switch faults in all section of Smart Phone • Powered On at the alarm set time, Active mode, Acting dead mode,Sleep mode and Partially on mode of a Smart phone • Android based application development,IoT related application development 		
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The training should include online single user Classroom / laboratory teaching, learning and simulation software module on Mobile and Wireless Communication with following key features:

The content should be designed by using platforms like Visual Basic, Dot Net, Flash etc and should be useful to understand the basic concepts of mobile and wireless communication, the software should comprise simulations, animations, videos, graphs, charts, along with mandatory rich content and theory to understand fundamental concepts, interactive learning objects, FAQ, MCQ etc of Mobile and Wireless Communication with following topics:

Cellular Fundamentals: Fundamentals, Frequency Reuse, Architecture, Interference, Path Environment, Coverage and Capacity. GSM Network: History, GSM Family, Network, Subsystem entities, Logical Channel, Multiplexing scheme, GSM Management, Call Management, Call setup, call release, Handover, GSM Security. CDMA: Multiple Access Techniques, CDMA Transmitter, Working, Spread Spectrum, DSSS, Frequency Hopping, Pseudo Random Code, Power Control, Handoff Process, Rake Receiver, Capacity of CDMA.

2. Technical Specification of Mobile Repair Tool Kit:

Sl No	PPDC Requirement		Supplier Specification
	Description	Qty Required	
1	Anti-Static Pad	10 nos	
2	Compatible Software with variety of Handsets	05 nos	
3	Connecting Wires: Thin laminated or coated copper wire spool	100 nos	
4	ESD Brush	15 nos	
5	ESD Coat	15 nos	
6	ESD Gloves	15 nos	
7	ESD Wrist Band	15 nos	
8	Esd-Safe Twizzer – Flat: To hold electronic components, while soldering and de-soldering.	15 nos	
9	Esd-Safe Twizzer – Sharp : To hold electronic components, while soldering and de-soldering.	15 nos	
10	Isopropyl Solution (EP): IPA or Isopropyl Alcohol for cleaning PCB	10 nos	
11	Led Opening Absorber	15 nos	

12	Magnifying Lens: 10X magnification with light, on stand	10 nos	
13	Mobile Opener: To open the housing or body of a mobile phone	10 nos	
14	Multi-Phone Charger	12 nos	
15	PCB Holder: A PCB (Printed Circuit Board) holder or PCB Stand to hold the PCB of a mobile phone while soldering or repairing	10 nos	
16	Precision Screw Drivers: Precision screwdrivers of sizes T4, T5, T6 and four head required for mobile repairing	20 nos	
17	Regulated DC Power Supply: Regulated DC (Direct Current) power supply to supply DC current to a mobile phone	08 nos	
18	Scrap Smart Phone	10 nos	
19	SMD Rework Station: Good quality ESD Safe soldering station and SMD repair system hot air blower combo unit	10 nos	
20	Soldering Station: Variable 12VDC	10 nos	
21	Ultrasonic Cleaner: To clean PCB of a mobile phone and electronic components	05 nos	
22	Battery Booster: To boost the power of battery of a mobile phone	05 nos	
23	LCD Separator Machine: Manual separator LCD touch screen separating machine with built in vacuum pump for mobile pump	02 nos	