

Tender Notice

E- Tenders are invited from Authorised Firms for the following items.

Purchase and Supply Tinkering Lab Equipments

Date of Publishing of E-Tender	18/03/2023
Date of Closing of E-Tender	28/03/2023 5 PM
Opening of E-Tender	29/03/2023 5 PM

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Phone Number:-9495708459(Vice Principal- Pavizhakumari L)

Principal,
GHSS
Marayamangalam

General Tender Terms & Conditions for e-Procurement

This tender is an e-Tender and is being published online for the PURCHASE OF TINKERING LAB EQUIPMENTS. The tender is invited in 1 cover system from the registered and eligible firms through e-procurement portal of Government of Kerala (<https://www.etenders.kerala.gov.in>). Prospective bidders willing to participate in this tender shall necessarily register themselves with above mentioned e-procurement portal.

The tender timeline is available in the critical date section of this tender published in www.etenders.kerala.gov.in.

A). Online Bidder registration process:

Bidders should have a Class II or above Digital Signature Certificate (DSC) to be procured from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on www.cca.gov.in. Once, the DSC is obtained, bidders have to register on www.etenders.kerala.gov.in website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost.

Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471-2577088/188/388 or through email: helpetender@gmail.com for assistance in this regard.

B). Online Tender Process:

The tender process shall consist of the following stages:

- i. **Downloading of tender document:** Tender document will be available for free download on www.etenders.kerala.gov.in. However, tender document fees shall be payable at the time of bid submission as stipulated in this tender document.
- ii. **Pre-bid meeting:**No
- iii. **Publishing of Corrigendum:** All corrigenda shall be published on www.etenders.kerala.gov.in and shall not be available elsewhere.
- iv. **Bid submission:** Bidders have to submit their bids along with supporting documents to support their eligibility, as required in this tender document on www.etenders.kerala.gov.in. No manual submission of bid is allowed and manual bids shall not be accepted under any circumstances.
- v. In case bidder encounters any technical issues pertaining to e-Procurement system while acting on the tender, computer screen shot of the error message with date & time stamp

on the web-browser along with the query shall be e-mailed by the bidder to the help desk (helpetender@gmail.com/ etendershelp@kerala.gov.in), for resolution of the problem. At the same time, matter must be intimated to the concerned Tender Inviting Authority via email.

- vi. The time taken to ascertain, evaluate and suggest a solution for the problem reported by bidder may vary from case to case. Hence bidders are advised to submit the bid **at least 2 working days before the due date** and time of bid submission to avoid any last minute issues that may come up.
- vii. **Opening of Technical Bid and Bidder short-listing:** The technical bids will be opened, evaluated and shortlisted as per the eligibility and technical qualifications. All documents in support of technical qualifications shall be submitted (online). Failure to submit the documents online will attract disqualification. Bids shortlisted by this process will be taken up for opening the financial bid.
- viii. **Opening of Financial Bids:** Bids of the qualified bidder's shall only be considered for opening and evaluation of the financial bid on the date and time mentioned in critical date's section.

C). Documents Comprising Bid:

- (i). **The First Stage (Pre-Qualification or Technical Cover based on 1cover or 2 cover tender system):**

Pre-Qualification or Technical proposal shall contain the scanned copies of the following documents which every bidder has to upload:

- i) Document 1 Tender Notice
- ii) Document 2 Terms And conditions
- iii) Document 3 Specifcaions
- iv) Document 4 Company Profile
- v) Document 5 Company Licences
- vi) Document 6 Emd exemption
- vii) Document 7 Quotation
- viii) Document 8 BOQ

The department doesn't take any responsibility for any technical snag or failure that has taken place during document upload.

(ii). The Second Stage (Financial Cover or as per tender cover system):

The Bidder shall complete the Price bid as per format given for download along with this tender.

Note: The blank price bid should be downloaded and saved on bidder's computer without changing file-name otherwise price bid will not get uploaded. The bidder should fill in the details in the same file and upload the same back to the website.

Fixed price: Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable/variable price quotation will be treated as non - responsive and rejected.

D). Tender Document Fees and Earnest Money Deposit (EMD)

The Bidder shall pay, a tender document fees of Rs. 2,500 and Earnest Money Deposit *as per department norms*. The EMD is required to protect the purchaser against risk of Bidder's conduct, which would warrant the forfeiture of security.

Online Payment modes: The tender document fees and EMD can be paid in the following manner through e-Payment facility provided by the e-Procurement system

State Bank of India Multi Option Payment System (SBI MOPS Gateway): Bidders are required to avail Internet Banking Facility in any of below banks for making tender remittances in eProcurement System.

A) Internet Banking Options (Retail)			
1	Allahabad Bank	32	Kotak Mahindra Bank
2	Axis Bank	33	Lakshmi Vilas Bank
3	Andhra Bank	34	Mehsana Urban Co-op Bank
4	Bandan Bank	35	NKGSB Co-operative Bank
5	Bank of Bahrain and Kuwait	36	Oriental Bank of Commerce
6	Bank of Baroda	37	Punjab and Maharashtra Cooperative Bank
7	Bank of India	38	Punjab National Bank
8	Bank of Maharashtra	39	Punjab and Sind Bank
9	Bassein Catholic Co-operative Bank	40	RBL Bank
10	BNP Paribas	41	Saraswat Cooperative Bank
11	Canara Bank	42	ShamraoVithal Cooperative Bank
12	Catholic Syrian Bank	43	South Indian Bank
13	Central Bank of India	44	Standard Chartered Bank
14	City Union Bank	45	State Bank of India
15	Corporation Bank	46	Syndicate Bank

16	Cosmos Bank	47	Tamilnad Mercantile Bank
17	DCB Bank	48	Tamilnadu Cooperative Bank
18	Dena Bank	49	The Kalyan Janata Sahakari Bank
19	Deutsche Bank	50	TJSB Bank (Erstwhile Thane Janata Sahakari Bank)
20	Dhanalaxmi Bank	51	UCO Bank
21	Federal Bank	52	Union Bank of India
22	HDFC Bank	53	United Bank of India
23	ICICI Bank	54	Vijaya Bank
24	IDBI Bank	55	YES Bank
25	Indian Bank		
26	Indian Overseas Bank		
27	IndusInd Bank		
28	Jammu & Kashmir Bank		
29	Janata Sahakari Bank		
30	Karnataka Bank		
31	Karur Vysya Bank		
B) Internet Banking Options (Corporate)			
1	Bank of Baroda	21	Laxmi Vilas Bank
2	Bank of India	22	Oriental Bank of Commerce
3	Bank of Maharashtra	23	Punjab & Maharashtra Coop Bank
4	BNP Paribas	24	Punjab & Sind Bank
5	Canara Bank	25	Punjab National Bank
6	Catholic Syrian Bank	26	RBL Bank
7	City Union Bank	27	ShamraoViththal Co-operative Bank
8	Corporation Bank	28	South Indian Bank
9	Cosmos Bank	29	State Bank of India
10	Deutsche Bank	30	Syndicate Bank
11	Development Credit Bank	31	UCO Bank
12	Dhanalaxmi Bank	32	Union Bank of India
13	Federal Bank	33	UPPCL
14	HDFC Bank	34	Vijaya Bank
15	ICICI Bank	35	Axis Bank
16	Indian Overseas Bank		
17	Janta Sahakari Bank		
18	Jammu & Kashmir Bank		
19	Karur Vysya Bank		
20	Kotak Bank		

During the online bid submission process, bidder shall select **SBI MOPS** option and submit the page, to view the **Terms and Conditions** page. On further submitting the same, the e-Procurement system will re-direct the bidder to MOPS Gateway, where two options namely **SBI** and **Other Banks*** will be shown. Here, Bidder may proceed as per below:

- a) SBI Account Holders shall click **SBI** option to with its Net Banking Facility., where bidder can enter their internet banking credentials and transfer the Tender Fee and EMD amount.
- b) Other Bank Account Holders may click **Other Banks** option to view the bank selection page. Here, bidders can select from any of the 54 Banks to proceed with its Net Banking Facility, for remitting tender payments.

**Transaction Charges for Other Banks vide SBI Letter No. LHO/TVM/AC/2016-17/47 – 1% of transaction value subject to a minimum of Rs. 50/- and maximum of Rs. 150/-*

** Bidders who are using Other Banks option under SBI MOPS Payment Gateway, are advised by SBI to make online payment 72 hours in advance before tender closing time.*

Any transaction charges levied while using any of the above modes of online payment has be borne by the bidder. The supplier/contractor's bid will be evaluated only if payment status against bidder is showing “**Success**” during bid opening.

E). SUBMISSION PROCESS:

For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their Technical bid and Financial bid online on www.etenders.kerala.gov.in along with online payment of tender document fees and EMD.

It is necessary to click on “Freeze bid” link/ icon to complete the process of bid submission otherwise the bid will not get submitted online and the same shall not be available for viewing/ opening during bid opening process.

Tinkering Lab

List of Materials

Package 1 : Electronics Development, Robotics, Internet of things and Sensors					
Category	Name	Specification	Suggested Quantity	Type	Received
Electronics Development	Arduino Uno or equivalent	<ul style="list-style-type: none"> • AT mega 328P-8 bit AVR family microcontroller, equivalent or better. • Operating Voltage: 5V • Digital I/O Pins:14 (of which 6 Provide PWM output) • PWM digital I/O Pins:6 • Accessories Case shell enclosure, compatible USB cable (length- 6 inch or more) 	15	Consumable	
Electronics Development	Arduino Nano or equivalent	<p>AT mega 328P-8 bit AVR family microcontroller, equivalent or better.</p> <p>Operating Voltage:</p> <p>Digital I/O Pins: 14 (of which 6 Provide PWM output)</p> <p>PWM digital I/O Pins:8</p> <p>Accessories : Compatible USB cable (length- 6 inch or more)</p>	05	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Electronics Development	Arduino Mega or equivalent	<ul style="list-style-type: none"> ● AT mega 2560P-8 bit AVR family microcontroller, equivalent or better. ● Operating Voltage: 5V ● Digital I/O Pins:54 (of which 6 provide PWM output) ● PWM digital I/O Pins:16 ● Accessories : Case Shell enclosure, Compatible USB cable (length- 6 inch or more) 	05	Consumable	
Electronics Development	RaspberryPi3 Model B+	<ul style="list-style-type: none"> ● RASPBERRY PI 3 MODEL B+, equivalent or better ● Accessories- Micro SD card- 32 GB, USB 3.0 cable (1 meter), HDMI to VGA-1 Meter, HDMI to VGA adapter, Case shell enclosure 	3	Consumable	
Electronics Development	Breadboards & Mini Breadboard	<ul style="list-style-type: none"> ● Solderless 400 pin breadboard ● Solderless 800 pin breadboard ● Self- Adhesive Proto shield 	15 10 10	Consumable	
Electronics Development	General Purpose Solderable Board	<ul style="list-style-type: none"> ● FR2A Grade Material (140x90mm) ● FR2 A Grade Material (80x55mm) 	15 15	Consumable Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
	Berg Strips	<ul style="list-style-type: none"> Female Berg Strip, 2.54mm Pitch, 40 pin Single row, breakable pin Male Berg Strip, 2.54mm Pitch, 40 pin Single row, breakable pin 	15 15	Consumable Consumable	
Electronics Development	16x2 LCD display	<ul style="list-style-type: none"> Dot matrix LCD display. 16 characters x2 lines. 12C 	10	Consumable	
Electronics Development	USB Cables	<ul style="list-style-type: none"> USB cable Set (A to B mini, 12 inches or more) 	05	Consumable	
Electronics Development	USB Cables	<ul style="list-style-type: none"> USB cable Set (Mini, 12 inches or more) 	05	Consumable	
Electronics Development	Battery	<ul style="list-style-type: none"> 9-12V 2000 to 2500 mAh rechargeable battery with 2 chargers, Equivalent or better 	05	Consumable	
Electronics Development	Resistor Kit	<ul style="list-style-type: none"> One kit contains- 30 carbon film resistors of 20 different resistance values each assorted, packaged together and labelled. Wattage: 0.125W to 1W Values: 1.5Ω, 4.7Ω, 10Ω, 47Ω, 100Ω, 220Ω, 330Ω, 470Ω, 680Ω, 1kΩ, 2.2kΩ, 3.3kΩ, 4.7kΩ, 10kΩ, 22kΩ, 47kΩ, 100kΩ, 330kΩ, 1MΩ, 	10	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Electronics Development	Capacitor Kit	<ul style="list-style-type: none"> One kit contains- 20 Electrolytic capacitors of 10 different capacitance values each. Assorted kit packaged together and labelled. Values: 10pF, 22pF, 100pF, 1nF, 10nF, 100nf, 1µF, 10µF, 100µF, 1000µF. 	10	Consumable	
Electronics Development	Linear Voltage Regulator	<ul style="list-style-type: none"> 7805, 7812, 7809 	15	Consumable	
Electronics Development	Water Pump module	<ul style="list-style-type: none"> DC12V3W submersible water Pump 	2	Consumable	
Electronics Development	Piezoelectric Plate	<ul style="list-style-type: none"> Normal Copper based 4cm Diameter approx. 	15	Consumable	
Electronics Development	8*8 LED Matrix Module	<ul style="list-style-type: none"> Max7219 Dot LED Matrix Module. MCU control LED Display Module. 	05	Consumable	
Electronics Development	Bluetooth Module	<ul style="list-style-type: none"> HC 05 Bluetooth module Voltage Rating :5V 	08	Consumable	
Electronics Development	7 Segment Led Display	<ul style="list-style-type: none"> LED 4-Digit Display Module Voltage Rating:2.4V to 5.5V 4-Pin interface: VCC, Gnd, Data Clock 	10	Consumable	
Electronics Development	GSM	<ul style="list-style-type: none"> Sim900 GPRS Transfer board Micro Sim GSM Core TTL Port Module for Arduino 	2	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Electronics Development	GPS	<ul style="list-style-type: none"> • GY-NEO6MV2 new GPS module 	2	Consumable	
Electronics Development	Laser Diode Emitter	<ul style="list-style-type: none"> • 650 nm 5mW Mini Laser Dot Diode Module 	05	Consumable	
Electronics Development	LDR Module	<ul style="list-style-type: none"> • 5mm/12mm, Photosensitive LDR Light Sensor Module 	15	Consumable	
Electronics Development	Keypad	<ul style="list-style-type: none"> • Universal 16Key Switch Keypad 	05	Consumable	
Electronics Development	Joystick	<ul style="list-style-type: none"> • 2-axis joystick with push button function 	05	Consumable	
Electronics Development	Active Buzzer	<ul style="list-style-type: none"> • Small 5 volt • Big 5 Volt 	20 20	Consumable Consumable	
Electronics Development	Motor Drive Module	<ul style="list-style-type: none"> • L293D 	05	Consumable	
Electronics Development	Sound Playback Module	<ul style="list-style-type: none"> • ISD1820 voice recording module or equivalent 	05	Consumable	
Electronics Development	DC Plastic Gear motor with Wheel	<ul style="list-style-type: none"> • 12V, 150RPM, Side shaft BO (Battery operation) Motor 	20	Consumable	
Electronics Development	Node MCU	<ul style="list-style-type: none"> • ESP 8266 • 12C, 1 wire Plug and Play 	03	Consumable	
Electronics Development	WeMosD1R2	<ul style="list-style-type: none"> • WeMosD1R2 with WiFi ESP8266 • Operating Voltage :5V 	03	Consumable	
Electronics Development	Vibrating Motor	<ul style="list-style-type: none"> • Weight: 10 Grams • Operating Voltage: 1.5 to3V 	10	Consumable	
Electronics Development	Alligator Connectors	<ul style="list-style-type: none"> • Multi-Colour Alligator Connectors- 12inch 	100	Consumable	
Electronics Development	Battery Clips With DC Jack	<ul style="list-style-type: none"> • 9-volt battery clips with DC jack 	20	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Electronics Development	Hook-up wires	<ul style="list-style-type: none"> Red & Blackset 100 meters each 	2	Consumable	
Electronics Development	Jumper Cable	<ul style="list-style-type: none"> Male-Male Male-Female Female-Female 	500 300 200	Consumable	
Electronics Development	RGB LEDs	<ul style="list-style-type: none"> Regular 5mm 3-5volt Range 	200	Consumable	
Electronics Development	RGB LEDs (Red)	<ul style="list-style-type: none"> Regular 5mm 3-5volt Range 	500	Consumable	
Electronics Development	RGB LEDs (Green)	<ul style="list-style-type: none"> Regular 5mm 3-5volt Range 	500	Consumable	
Electronics Development	RGB LEDs (Blue)	<ul style="list-style-type: none"> Regular 5mm 3-5volt Range 	500	Consumable	
Electronics Development	RGB LEDs (Yellow)	<ul style="list-style-type: none"> Regular 5mm 3-5volt Range 	500	Consumable	
Electronics Development	RGB LEDs (White)	<ul style="list-style-type: none"> Regular 5mm 3-5volt Range 	500	Consumable	
Electronics Development	Timer IC-LM 555	<ul style="list-style-type: none"> LM555 Timer IC Voltage Range-4.5V to 16V 	15	Consumable	
Electronics Development	Atmega16u2	<ul style="list-style-type: none"> 8-bit microcontroller Individual IC (DIP) Voltage range:2.7V to5.5V. Operational Range: -40 C to +80 C 	05	Consumable	
Electronics Development	Diodes and Transistors Kit	<ul style="list-style-type: none"> One Kit Contains-25 Assorted Basic Diodes of 4 different types each. Types:NPN Transistor-2N3904, BC547NPN Transistor -2N3906, BC557 Silicon Diode -1N4148, Power Diode-1N4004/4001 Equivalent or 	2	Consumable	

		battery. • Wattage: 1 W, Current rating 1A • Assorted Kitpackaged together and labelled.			
Electronics Development	Button Switch set	• One Kit Contains-100 buttons of different types. • Types: Push, toggle, rotary, selector and slide switch • Assorted Kitpackaged together and labelled.	2	Consumable	
Electronics Development	Capacitive Touch switch Module	• MPR 121 with 12C. • Voltage Range :2.5V to 3.6V DC.	10	Consumable	
Electronics Development	Capacitive Touch Switch Module	• Digital Capacitive Touch Switch module- TTP223B • Voltage Range 2V to 5V DC	05	Consumable	
Electronics Development	IR Sensors, Obstacle avoider SensorModule	• LM 393 • Detection Distance: 2-30cm • Detection Angle: 30-40°	10	Consumable	
Internet of Things & Sensors	Triple Axis Magnetometer	• 3-Axis Magneto Resistive Sensors • 12C Digital Interface • Integrated 12-bit ADC • Range of -8 to +8Gauss • 160 Hz Maximum o/p rate	05	Consumable	

Internet of Things & Sensors	Humidity Sensor	<ul style="list-style-type: none"> • Operating Range: 20-95% RH • Temperature: 0-60 Celsius • Power Supply: 1.5V AC (Max Sine) • Operating Frequency: 500Hz- 2kHz 	05	Consumable	
Internet of Things & Sensors	MQ Series	<ul style="list-style-type: none"> • MQ-2 Smoke Detection • MQ-3 Alcohol- Ethanol Sensor • MQ-4 Methane Natural Gas Sensor • MQ-5 Methane Liquefied Gas Sensor • MQ-6 Liquefied Petroleum Gas Sensor • MQ-7 high Sensitivity CO Carbon Monoxide Sensor Detector • MQ-8 Hydrogen Gas Sensor • MQ-135 Air Quality Sensor 	2 2 2 2 2 2 2 2	Consumable	
Internet of Things & Sensors	IR transmitter/ receiver	<ul style="list-style-type: none"> • TSOP 1738 • Switching rate: 38KHz • Voltage Rating : 5V 	05	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Internet of Things & Sensors	Ultrasonic Sensor Module HC-SR-04 or Compatible	<ul style="list-style-type: none"> • Working Voltage-DC 5V • Working Current-15mA • Working Frequency -40Hz • Range-1 cm to 4m • Effectual Angle- <15° • Measuring Angle-30° • Resolution – 0.3cm 	20	Consumable	
Internet of Things & Sensors	Triple Axis Accelerometer	<ul style="list-style-type: none"> • 3-axis sensing • Small, Low profile Package • 4mm x 4 mm x 1.45 mm LFCSP • Low Power: 350 µA (typical) • Single-supply operation: 1.8V to 3.6V • Temperature Stability 	05	Consumable	
Internet of Things & Sensors	PIR Motion Detector Module	<ul style="list-style-type: none"> • High digital pulse when motion detected • Low digital pulse when idle/no motion detected • Sensitivity range (up to 6m) • Power supply: 5V-12V 	10	Consumable	
Internet of Things & Sensors	Pulse Rate Heart Sensor	<ul style="list-style-type: none"> • Pulse Rate Sensor Finger Based (finger or earlobe) Working voltage 3-5V 	02	Consumable	
Internet of Things & Sensors	Rely Module	<ul style="list-style-type: none"> • 5V10A-2 channel Relay Module. Compatible with Arduino. 	10	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Internet of Things & Sensors	Rely Module	<ul style="list-style-type: none"> • 5V10A-1 channel Relay Module. Compatible with Arduino. 	10	Consumable	
Internet of Things & Sensors	Big Sound microphone module	<ul style="list-style-type: none"> • Large Electret capsule sound module 	05	Consumable	
Internet of Things & Sensors	Soil Moisture Sensor module	<ul style="list-style-type: none"> • FC – 28 with LM 293 comparator • Operating Voltage: 3.3V to 5C 	3	Consumable	
Internet of Things & Sensors	Touch Sensor	<ul style="list-style-type: none"> • Capacitive Touch Sensor • Module. TTP22x series. • Voltage Range: 2.4v to 5.5v 	3	Consumable	
Internet of Things & Sensors	Metal Touch Sensor module	<ul style="list-style-type: none"> • KY-036 or equivalent metal touch sensor module 	3	Consumable	
Internet of Things & Sensors	Rain Drop Sensor	<ul style="list-style-type: none"> • Rain Sensitive,Rain Drop Detection Sensor Module. Voltage Range: 3.3V to5.5V • Size: 5mm x40mm or equivalent. 	3	Consumable	
Internet of Things & Sensors	Flex Sensor	<ul style="list-style-type: none"> • Flex Sensor : Size- 2.2 inches 	3	Consumable	
Internet of Things & Sensors	Temperature Sensor	<ul style="list-style-type: none"> • LM 35 full range temperature Sensor. Voltage Range: 4V to 30V. Error: 0.5°c 	3	Consumable	
Internet of Things & Sensors	Temperature Sensor	<ul style="list-style-type: none"> • DHT 11 • Voltage Range: 3V to 5V 	20	Consumable	
Internet of Things & Sensors	Force pressure Sensor	<ul style="list-style-type: none"> • Force sensitive resistor with a square, 1.75x1.5” sensing area 	2	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Internet of Things & Sensors	Colour Recognition Sensor	<ul style="list-style-type: none"> • TCS 3200 colour Recognition Sensor 	02	Consumable	
Internet of Things & Sensors	Water Flow Sensor	<ul style="list-style-type: none"> • Arduino Compatible water flow sensor. 5V DC Input 	02	Consumable	
Internet of Things & Sensors	Sound Sensor	<ul style="list-style-type: none"> • Sound Sensor Module Microphones module 	05	Consumable	
Internet of Things & Sensors	IR Sensor Array module for line Following	<ul style="list-style-type: none"> • 8 IR Sensor Array module for Line following • Operating Voltage: 5V 	05	Consumable	
Internet of Things & Sensors	Power Bank	<ul style="list-style-type: none"> • 10000 mAh 5V Power Bank 	03	Consumable	
Internet of Things & Sensors	RFID Reader Tags	<ul style="list-style-type: none"> • Current: 12-26mA/DC 3.3V • Idle Current: 10-13mA • Sleep Current < 80uA • Peak Current < 30mA • Operating Frequency: 13.56 MHz < 30mA • Read range between 20cm to 1m 	05	Consumable	
Internet of Things & Sensors	RF modules Tx & Rx 315 MHz Ask	<ul style="list-style-type: none"> • Frequency Range: 433.93/315 MHz • Supply voltage: 3-6V • Output: 4-16 Dbm • Low Power consumption • Easy Application 	05	Consumable	
Robotics	Stepper motor with driver board	28BYJ-48ULN2003 5V Stepper Motor + ULN2003 Driver Board	05	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Robotics	DC motor	12V DC Gear 150 RPM	10	Consumable	
Robotics	Servo Motors	<ul style="list-style-type: none"> • Position Servo Angle Based Metal Gear • Small Servo Metal Gear • Continuous Metal Gear Servo 360 • Small Servo Plastic Gear 	05 05 05 20	Consumable	
Robotics	150 RPM BO Motor	150 RPM BO Motor	05	Consumable	
Robotics	L298P Motor Driver	L298P Moto Drive Shield or Relative Drive Shield	05	Consumable	
Robotics	Servo Motor Tester	CCPM 3 channel Servo Tester	2	Consumable	
DIY Kit	Robotics DIY Kit	Robotics DIY kit with programmable intelligent brain/brick	2	Equipment	
DIY Kit	Mechanical (Modular) Construction kit	Metal/Plastic mechanical construction kits compatible with electronic equipment	3	Equipment	
STEM Learning/Application Kit	Drone kit Aerospace kit Automobile kit Bio Medical Kit Agri-Tech Kit Water/Sanitation Kit Bio Tech Kit Other Potential STEM Application Kit	Educational Purpose	1 1 1 1 1 1 1 1	Equipment	

Package 2 : Rapid Prototyping Tools					
Category	Name	Description	Suggested Quantity	Type	Received
Rapid Prototyping Tools	3D Printer kit and tools	<p>Printer type:</p> <p>FDM (Fused Deposition Modelling),</p> <p>Minimum dimensions:</p> <p>160mm*160mm</p> <p>Build size or 4 litre Build volume,</p> <p>Nozzle: 0.3mm to 0.4mm nozzle diameter, slicing software should be free or open source, LCD screen UI that display print metrics,</p> <p>Good Heated print Bed</p> <p>Material Compatibility – PLA, ABS and derivatives of PLA, Ninja flex</p> <p>Quality Anti-bacterial/ fungal cover.</p> <p>Repair Kit – with spare springs, Screws, keys, tweezers, etc.</p>	1	Equipment	

Category	Name	Specification	Suggested Quantity	Type	Received
Rapid Prototyping Tools	Dedicated UPS/ Power back up	Dedicated UPS/Power Back up with 2- hour battery backup.	1	Equipment	
Rapid Prototyping Tools	Filament for 3D printer	Compatible 1000 grams filament in 5 different colours	3	Consumable	
Rapid Prototyping Tools	Filament storage box	Compatible filament storage box	3	Consumable	
Rapid Prototyping Tools	Set of Arts & Crafts Accessories- e.g. - stationary items and basic prototyping material	Cardboard	3	Consumable	
		Foam core boards	3		
		20 m spool of thick strings various colours	3		
		Rubber band	50		
		Popsicle sticks	50		
		Wood glue- 500 ml	1		

Package 3: Mechanical, Electrical and Measurement Tools					
Category	Name	Description	Suggested Quantity	Type	Received
Mechanical Tools	Hacksaw Frame	Size: 12 inches	1	Equipment	
Mechanical Tools	Hacksaw blades	Size: 12 inches	05	Consumable	
Mechanical Tools	Mini Hacksaw Frame	Size: 6 inches	1	Equipment	
Mechanical Tools	Mini Hacksaw blades	Size: 6 inches	05	Consumable	
Mechanical Tools	Pliers: 4.5 inch size	<ul style="list-style-type: none"> • External Straight • Nose Circlip Plier • Long Nose Plier • Combination Mini Plier • Wire stripping Pliers • Bent nose Plier • Needle nose Pliers 	1 1 1 1 1 1 1	Equipment	
Mechanical Tools	Tweezer set	6 PC Non-magnetic Tweezer set Size-6 Inches	1	Equipment	
Mechanical Tools	Ball Pin Hammer	Ball Pein Hammer Weight-0.75kg	1	Equipment	
Mechanical Tools	Steel Shaft Claw Hammer	Claw Hammer Steel Shaft Weight-0.75kg	1	Equipment	
Mechanical Tools	C- Clamp	Metal Clamp:3-inch size	2	Equipment	
Mechanical Tools	Allen Key Set	10 Piece Ring imperial Allen hex key	1	Equipment	
Mechanical Tools	Drill machine Set	Drill machine with accessories Hammer/Screw and Clockwise/anticlockwise modes. Power:500W Chuck capacity- 1to10mm Drill Bits-Masonry Metal, Wood	1	Equipment	

Category	Name	Specification	Suggested Quantity	Type	Received
Mechanical Tools	Drilling Workstation	Drill Press, Drill Holder and Rotary Tools, Compatible with Drilling machine provided	1	Equipment	
Mechanical Tools	Spanner set	12-piece combination spanner set Range-4mm to 30mm	1	Equipment	
Mechanical Tools	Vice normal	Table top vice	1	Equipment	
Mechanical Tools	Precision Screw Driver set	6 piece Precision Screw driver set Types: PH0, PH1, Flat head-1.4mm 2.4mm, 3mm	1	Equipment	
Mechanical Tools	Wrench	Adjustable Universal Wrench	1	Equipment	
Mechanical Tools	Wire Strippers	Wire Stripper Cutter Plier With Spring - 26*6*20cm (L*W*H)	3	Equipment	
Mechanical Tools	Screwdriver	40 pc Multi-Purpose Screwdriver set	2	Equipment	
Mechanical Tools	Cordless Rotary Multi-tool set	Cordless Rotary multi-tool with all cutting, grinding polishing, engraving and drill bits Speed: Adjustable up to 30000 RPM Battery Type Li-ion Voltage/current range :8- 10V, 0-2A	1	Equipment	
Mechanical Tools	Air Blower	500w or more Variable speed blower	1	Equipment	
Mechanical Tools	Drill Bit Set	High Quality 13 pcs HSS Drill bits Set for Wood, Iron, Aluminium, Plastic etc.	1	Equipment	

Category	Name	Specification	Suggested Quantity	Type	Received
Mechanical Tools	File set	6 pc file set Working length -6inch	1	Equipment	
Mechanical Tools	Mini File Set	6 pc mini file set Working length-3 inch	1	Equipment	
Mechanical Tools	Flexible Cutting mat	A 3 Size with marked Pattern and Grids (18" X 12")	1	Equipment	
Mechanical Tools	Plastic Storage Drawer/Organiser	Number of drawer:60 or equivalent Drawer size (l*w*d) (inch): 2*2*5	1	Equipment	
Mechanical Tools	Pegboard	Peg board System to mount tools on wall with Size: 3fit* 2ft	1	Equipment	
Electric Tools	Hot glue gun	Works with standard 0.5-inch glue sticks. Temperature-230 to 280 degree Celsius.	2	Equipment	
Electric Tools	Digital oscilloscope	Minimum Bandwidth 50 Mhz Minimum number of channels:2 channels sample rate:1gsa/s With inbuilt waveform function generator	1	Equipment	
Electric Tools	Soldering kit	<ul style="list-style-type: none"> Variable Wattage of soldering iron 15-30 watts/230volts Soldering iron Temperature Range: 280°C to 450°C De-Soldering Pump, Soldering Flux (Paste) 100 grams De-soldering copper Braid (Solder Wick) 1.5m*2mm Compatible 	2	Equipment	

		Soldering tip-Bevel, Chisel, Conical-5 each per kit • Soldering Wire:20/22 AWG Soldering wire with fosiin core flux(100 Grams)			
Electric Tools	Adapters	DC Power Adapter with 5V, 2A	05	consumable	
Electric Tools	Adapters	DC Power Adapter with 12V, 2A	05	consumable	
Electric Tools	Electric Screw Driver set	Multipurpose Electric screwdriver set. Accessories- Compatible bits Mode- Wireless Battery-LI-Ion 3.6V or equivalent with charging dock	1	Equipment	
Electric Tools	Dual Temperature Heat Gun	1800 W Dual Temperature Heat Gun	1	Equipment	
Electric Tools	Soldering Helping Hand	Specification: Adjustable crocodile holding lamps/Clip. Soldering iron holder LED Light Magnifying lens	2	Equipment	
Measurement Tools	Return measuring tape	Return Measuring tape 5M x 19MM	1	Equipment	
Measurement Tools	Stainless Steel Rule	Stainless Steel 12"/150 mm Rule	3	Equipment	
Measurement Tools	Digital Vernier Calliper	150mm/6" digital Vernier Calliper	1	Equipment	
Measurement Tools	Spirit Level	12" Spirit Level	1	Equipment	
Measurement Tools	Digital pen electric Tester	Voltage tester	1	Equipment	

Category	Name	Specification	Suggested Quantity	Type	Received
Measurement Tools	Digital Multi Meter	Digital Multi Meter Voltage Current Resistance- 7functions+19 ranger to cover DC Voltage 200MV to 1kV AC Voltage 200V-750V, DC Current 200HA- 10A Resistance 200-2M Ohm and Transistor & diode test	3	Equipment	
Biology Kit	DIY paper Microscope	DIY Paper microscope Magnification range- 100*to 2000*	3	Consumable	
Astronomy Equipment	Telescope	<ul style="list-style-type: none"> • All glass Optical Components • Altazimuth mount suitable for terrestrial and astronomical use • Minimum 700mm focal length 	1	Equipment	
Textile Equipment	Sewing Kit	<ul style="list-style-type: none"> • Semi- automatic sewing machine • Straight stitch • Consumables-2 set of assorted needles and 10-colour spool set. 	1	Equipment	

Package 4 : Power Supply & Accessories and Safety Equipment					
Category	Name	Specification	Suggested Quantity	Type	Received
Power Supply & accessories	Glue Sticks	<ul style="list-style-type: none"> • 11 mm x 200mm Hot Melt Glue Stick 	50	Consumable	
Power Supply & accessories	Nuts and Bolts and Screw	<ul style="list-style-type: none"> • Specs-M4x12MM • M4X20MM • M5X16MM • M5X25MM • M6X20MM 	20	Consumable	
Power Supply & Accessories	Cable Tie	• Small Cable Tie Pack-Pack of 100	05	Consumable	
		• Medium Cable Tie Pack, Pack of 100	05	Consumable	
		• Big Cable Tie Pack, Pack of 100	05	Consumable	
Power Supply & Accessories	Sand Paper	<ul style="list-style-type: none"> • Grit Values – 80, 100, 120, 200, 300, 5 Nos of each 	05	Consumable	
Power Supply & Accessories	Power Strip Adaptors	Standard Quality Extension with 5Amp safety fuse. 5 or more sockets in each extension. 5-meter length of each extension.	03	Consumable	
Power Supply & Accessories	Bulb Holders	Regular Hanging Bulb holder	05	Consumable	
Power Supply & Accessories	Electric wires	Twisted Red black pair	10 meters	Consumable	
Power Supply & Accessories	USB to DC jack cable	USB to DC Jack Cable for Battery Bank	05	Consumable	
Safety Equipment	First Aid Kit	Standard Medical First Aid Kit in portable container.	1	Consumable	
Safety Equipment	Fire extinguisher (handy units)	Powder Type fire extinguisher 2KG	1	Consumable	

Category	Name	Specification	Suggested Quantity	Type	Received
Safety Equipment	Safety goggles (with/without LED torch)	Polycarbonate Safety goggles Clear lens with no tint	15	Consumable	
Safety Equipment	Safety Gloves Pairs	Latex Coating Gloves (Medium Size)	05	Consumable	
Safety equipment	Safety Mask	Filtering efficiency ranging 80 percent when tested against 0.3 micron sodium chloride particle	10	Consumable	

Guidelines for ‘Indicative List of Vendors’ for TL equipment

10 lakh Amount Division for Packages

Sl.No	PARTICULARS	AMOUNT
1	Package1,Package2, Package3, Package4	7,00,000.00
2	Laptop and projector	1,50,000.00
3	Lab Setting	1,50,000.00
	Total	10,00,000.00

1. It is mandatory for all vendors to provide installation and equipment training to the Schools (Principal/ TL-in charge/ faculty members) on handling and usage of equipment, after the delivery of the equipment, at no additional charge.
2. It is mandatory for all vendors to provide 2 years of comprehensive warranty and 5 years of Services at no additional charge (including for 3D printers). If the school requires repairing of a TL equipment, then the vendor should provide a replacement till the time the equipment is fully repaired).
3. Vendors should clearly indicate the timeline for delivery of packages, installation and training. The delivery time should not be more than 15 days. All the procedures & setting of the Lab should be completed before 31st March 2023.
4. The vendors should have a registered office in Kerala and at least 3 years of work experience in Purchase and setting of similar equipments for at least 3 Kerala Tinkering Labs . The vendors should maintain a supply chain of consumables and other items for 5 years.
5. The vendors should provide 5 years comprehensive AMC, wherever applicable, and clearly indicate the terms and conditions of the same .
6. The vendors should indicate both itemized prices and package wise pricing and provide detailed specification and brand name of all the equipment
 - (a). It is mandatory to quote all equipment as per the specifications provided by SSK which is included in the Tinkering Lab Equipment List.
 - (b). It is mandatory to include all packages which is included in the SSK tinkering Lab Equipment List.
 - (c) It is also mandatory to provide the suggested quantity of which is specified in the SSK tinkering Lab Equipment List.
7. The vendor should provide all required documents for verification by the school at the time of purchase of equipment. Authorized signatory must sign the documents.

8. The vendors should have a mechanism for proper disposal of e-waste.
9. The Vendors should ensure timely availability of all equipment and associated services to the School to avoid any delay or inconvenience to the school.
10. In case some schools are unhappy with the services of some selected vendors, they would not be permitted to provide services to other TL schools.
11. Schools can spend a maximum of Rs. 10,00,000/- (Rupees Ten Lakhs Only) on all the packages Package 1, Package 2, Package 3, Package 4. The total quotation for all the packages should not exceed the stipulated amount.
12. Mentoring should be provided to TL School Principal, TL assisting teachers and students for 5 years for free of cost.
13. While you interact with the TL schools, please make a note of the following guidelines:
 - a. Following phrases CAN NOT be used in your communication- in email/ social media/ or any other mode -'**Shortlisted by NITI Aayog**' or '**Promoted by NITI Aayog**' or '**Recommended by NITI Aayog**'. You may only use the language as per our email- which says that you are a part of the '**Indicative List of Vendors**' for TL equipment'
 - b. In case the vendors are conducting an event for the school, please note that such events cannot be branded as '**Atal Tinkering Lab Orientation**'. This is very misleading for the schools. Any such events/ interactions that you conduct with TL schools, should be treated as independent event/ interaction, and not linked to NITI Aayog's event.

