



Sant Longowal Institute of Engineering & Technology, Longowal
(Deemed to be University)

TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP)
[Phase-III]

Sub-Component 1.3: (Twinning Arrangement to build capacity and Improve Performance of Participating Institutes)

INVITATION FOR QUOTATION

Ref No. SLIET/TEQIP-III/

21/08/2019

To,

Sub: Invitation for Quotations (Bids) for supply of Goods (Package No. TEQIP-III/2019/SLIE/41).

Dear Sir,

1. You are invited to submit your most competitive quotation for the goods with item wise detailed specifications attached at Annexure I,
2. Government of India has received a credit from the International Development Association (IDA) towards the cost of the Technical Education Quality Improvement Programme [TEQIP]-Phase III Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.
3. Quotation,
 - 3.1 The technical & financial bids should be submitted on company's letter head.**
 - 3.2 The contract shall be for the full quantity as described above.
 - 3.3 Corrections, if any, shall be made by crossing out, initiating, dating and re writing.
 - 3.4 All duties and other levies payable by the supplier under the contract shall be included in the unit price.
 - 3.5 Applicable taxes shall be quoted separately for all items. All bidders are required to mention GST number.
 - 3.6 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
 - 3.7 The Prices should be quoted in Indian Rupees only.

4. Each bidder shall submit only one quotation.
5. **Technical bid and Financial bid should be placed in separate sealed envelopes.**
6. Quotation shall remain valid for a period not less than 40 days after the last date of quotation submission.
7. Evaluation of Quotations,
The purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which
 - 7.1 are properly signed; and
 - 7.2 confirm to the terms and conditions, and specifications.
8. The Quotations would be evaluated for all items together for any particular package.
9. Award of contract:
The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.
 - 9.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.
 - 9.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
10. Payment shall be made in Indian Rupees as follow:
100% payment will be made after satisfactory acceptance of the items.
11. All supplied items are under warranty of 12 months from the date of successful acceptance of items.
12. You are requested to provide your offer latest by **05/09/2019** upto 16:30 hours.
13. Detailed specifications of the items are attached as **Annexure I.**
14. Training Clause (if any) Yes
15. Testing /Installation Clause (if any) to be installed at SLIET Longowal.
16. Information brochures/Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
17. Sealed quotation to be **submitted/delivered by post/in person** at the address mentioned below:
**Coordinator TEQIP-III,
Department of Mechanical Engineering,
S.L.I.E.T., Longowal-148106 (Distt. SANGRUR) Punjab**
18. We look forward to receiving your quotation and thank you for your interest in this project.
19. For any queries, related to above package, please contact:
Dr. Major Singh, Contact No. 7986234077

Prof. V.K. Kukreja
Coordinator (Procurement) TEQIP-III
teqip2sliet@gmail.com, 8427757135

Technical Specifications of the Hardware Equipments:

S. No	Items	Qty
1.	Wireless Sensor Network Based IOT Tool Kit	
	IOT Gateway for WSN Based IOT Tool <ul style="list-style-type: none"> • Must Supporting various Network Topology • On boards 20X4 LCD display • Facility to store the data • Zig bee 2.4 GHz Coordinator based on ARM 7 LPC2148. • On Board WI-FI & Bluetooth for data transfer selectable through Switch. • On Board Power supply(5V,3.3V)with rechargeable battery backup. • Configurable device software, for GUI based • Must have a enclosure. • Android app to watch data live with graphical representations of data. • Power supply indication on switch itself. • USB connector 	02
	Re Programmable Sensor Nodes for WSN Based IOT Tool <ul style="list-style-type: none"> • The end devices must be enclosed with enclosure batteries for field applications • The Programmable Intelligent End Device with USB interfaces, with ARM 7 Processor • Zig bee 2.4 GHz with antenna • Supporting various Network Topology • Onboard 20X4LCDdisplay. • On Board Power supply (5V,3.3V) • I2C, SPI, UART, Modbus, Analog Digital sensor interface. 	16
	Mod bus IOT Node for WSN Based IOT Tool <ul style="list-style-type: none"> • RS-485 Interface (Modbus RTU) • Wi-Fi 2.4 GHz, support WPA/WPA2 • Circular 8 pin connectors , metal switch • Integrated low power 32-bit MCU <p>Circular Connectors for the sensors interface , Rechargeable battery and Usb connection through Circular connectors</p>	05
	Wi- FI IOT Node for WSN Based IOT Tool <ul style="list-style-type: none"> • Wi-Fi 2.4 GHz, support WPA/WPA2 • Circular 8 pin connectors , metal switch • Integrated low power 32-bit MCU UART ,I2c, SPI Sensor Interfacing provision • AVR/ARM family based processor <p>Sensor Connection through 8 Pin metal circular Connectors with interlock USB facility for pc interfacing, serial communication and power led for module indication</p> <p>Circular Connectors for the sensors interface , Rechargeable battery and Usb connection through Circular connectors</p>	05
	General Sensors (Must be compatible and interfaced to above sensor nodes and Scratch modules)	
	Temperature Humidity Sensor for WSN Based IOT Tool Good for 0-100% humidity readings with 2-5% accuracy; Good for -40 to 80°C temperature readings $\pm 0.5^{\circ}\text{C}$ accuracy 1-1.5mA measuring current; 40-50 uA standby current	10

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	3 to 5V power and I/O; 2.5mA max current use during conversion (while requesting data) Real time Data acquisition unit	
	Smoke sensor for WSN Based IOT Tool Smoke detector ,photoelectric type, Dc 8v-30v ,Real time installed in various industries for safety alarm purpose	10
	Motion Sensor for WSN Based IOT Tool Operating voltage:range: DC 4.5-20V, Level output: High 3.3 V /Low 0V, Quiescent Current: <50uA Lens size sensor: Diameter:23mm(Default) Angle Sensor: <100 ° cone angle	10
	Light sensor for WSN Based IOT Tool Operating voltage:5v ,LDR ,	10
	Magnet sensor for WSN Based IOT Tool Output high and low ,operating voltage 5v Real time application for door closing and opening operation	10
	Proximity Sensor for WSN Based IOT Tool . Output Type: PNP NO(Normally Open) Detecting Distance: 4mm 1% Theory: Inductive Sensor Wire Type: 3 Wire Type (Brown, Blue, Black) Switch Appearance Type: Cylinder Type, Brass Shell Supply Voltage: DC 3-36V Current: 300mA Detect Object: Metal Diameter: 12mm Cable Length: 1.5M Package Includes: 1x Inductive Proximity Sensor Switch. Real time application in industry for production counting Display	10
	Ultrasonic Sensor for WSN Based IOT Tool Operating Voltage: 5V(DC) Output Signal: Electric frequency signal, high level 5V, low level 0V Sensor Angle: Not more than 15 degrees; Input Trigger Signal: 10us TTL impuls mEcho Signal: output TTL PWL signal Detection Distance: 2cm-450cm	10

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S.No	Items	Qty
2.	IOT for Enviroment Application Kit	
	IOT Gateway for Environment Application <ul style="list-style-type: none"> • Must Supporting various Network Topology • On boards 20X4 LCD display • Facility to store the data • Zig bee 2.4 GHz Coordinator based on ARM 7 LPC2148. • On Board WI-FI & Bluetooth for data transfer selectable through Switch. • On Board Power supply(5V,3.3V)with rechargeable battery backup. • Configurable device software, for GUI based • Must have a enclosure. • Android app to watch data live with graphical representations of data. • Power supply indication on switch itself. • USB connector 	01
	Re Programmable Sensor Nodes for Environment Application <ul style="list-style-type: none"> • The end devices must be enclosed with enclosure batteries for field applications • The Programmable Intelligent End Device with USB interfaces, with ARM 7 Processor • Zig bee 2.4 GHz with antenna,Supporting various Network Topology • Onboard 20X4LCDdisplay,On Board Power supply (5V,3.3V) • I2C, SPI, UART, Modbus, Analog Digital sensor interface. 	04
	Air Quality Sensors for Environment Application (Must be compatible and interfaced to above sensor nodes and Scratch modules)	
	PM Sensor for Environment Application Measuring output PM2.5,PM10, Range 0.0-999.9 ug/ m3,Power supply voltage 5V ,Maximum working current 100mA,Sleep current 2 mA, Operating temperature range -20-50°C,7 Response time 1s ,8 Serial data output frequency 1 time/s ,9 Particle diameter resolution Less than 0.3um	04
	NO2 ,NH3, CO Gas Sensor for Environment Application Air Quality Sensor Three fully independent sensing elements on one package Built with ATmega168PA I2C interface with programmable address Heating power can be shut down for low power Detectable gases Carbon monoxide CO 1 - 1000ppm Nitrogen dioxide NO2 0.05 - 10ppm Ammonia NH3 1 - 500ppm	03
	O3 Gas Sensor for Environment Application with the signal light indicates the output the dual signal output (analog output, and TTL-level output) TTL output valid signal is low; (low output signal light, can be accessed by the microcontroller IO port) the analog output increases with the concentration, the higher the voltage the higher the concentration the ozone gas with high sensitivity. (detection concentration range 10PPB-2PPM Ozone)	02
	CO2 Gas Sensor for Environment Application Measuring the range of 0-2000 parts per million (PPM) Resolution of 1 PPM 0-2000 parts per million (PPM) Accuracy of 200 PPM A Warm - up time 3 minutes Response Time < 90s Operating temperature 0 to 50°C ,Operating Humidity 0% ~ 90% RH,Storage temperature - 20-60°C ,Operating Voltage4.5 V to 6 V DC The Current maximum Current of less than 100 ma, the average Current of less than 50 ma,Output mode UART	04

S.No	Items	Qty
3.	IOT for Water Application	
	IOT Gateway for Water Application <ul style="list-style-type: none"> • Must Supporting various Network Topology • On boards 20X4 LCD display • Facility to store the data • Zig bee 2.4 GHz Coordinator based on ARM 7 LPC2148. • On Board WI-FI & Bluetooth for data transfer selectable through Switch. • On Board Power supply(5V,3.3V)with rechargeable battery backup. • Configurable device software, for GUI based • Must have a enclosure. • Android app to watch data live with graphical representations of data. • Power supply indication on switch itself. • USB connector 	01
	Re Programmable Sensor Nodes for Water Application <ul style="list-style-type: none"> • The end devices must be enclosed with enclosure batteries for field applications • The Programmable Intelligent End Device with USB interfaces, with ARM 7 Processor • Zig bee 2.4 GHz with antenna, Supporting various Network Topology • Onboard 20X4LCDdisplay, On Board Power supply (5V,3.3V) • I2C, SPI, UART, Modbus, Analog Digital sensor interface. 	04
	Water Quality Sensors for Water Application (Must be compatible and interfaced to above sensor nodes and Scratch modules)	
	Water Oxidation Reduction potential Sensor for Water Application Module Power: +5.00V Module Size: 40mmX27mm(1.57"x1.06") Measuring Range: -2000mV – 2000mV Suitable Temperature: 5-70°C Accuracy: ±10mv (25 °C) Response Time: ≤20sec, ORP Probe with BNC Connector, PH2.0 Interface(3 foot patch), Zero calibration button, Power Indicator LED	01
	WATER PH SENSOR for Water Application Module Power: 5.00V Module Size : 43 x 32mm(1.69x1.26") Measuring Range : 0 - 14PH Measuring Temperature: 0 - 60 °C Accuracy : ± 0.1pH (25 °C) Response Time : ≤ 1min pH Sensor with BNC Connector, pH2.0 Interface (3 foot patch), Gain Adjustment Potentiometer , Power Indicator LED	02
	WATER TDS SENSOR for Water Application Input Voltage: 3.3 ~ 5.5V Output Voltage: 0 ~ 2.3V Working Current: 3 ~ 6mA TDS Measurement Range: 0 ~ 1000ppm TDS Measurement Accuracy: ± 10% F.S. (25 °C) Module Size: 42 * 32mm, Module Interface: PH2.0-3P Electrode Interface: XH2.54-2P, TDS probe, Number of Needle: 2, Total Length: 83cm, Connection Interface: XH2.54-2P, Color: Black, Other: Waterproof Probe	04

S.No	Items	Qty
4.	IOT for Agriculture Application	
	IOT Gateway for Agriculture Application <ul style="list-style-type: none"> • Must Supporting various Network Topology • On boards 20X4 LCD display • Facility to store the data • Zig bee 2.4 GHz Coordinator based on ARM 7 LPC2148. • On Board WI-FI & Bluetooth for data transfer selectable through Switch. • On Board Power supply(5V,3.3V)with rechargeable battery backup. • Configurable device software, for GUI based • Must have a enclosure. • Android app to watch data live with graphical representations of data. • Power supply indication on switch itself. • USB connector 	01
	Re Programmable Sensor Nodes for Agriculture Application <ul style="list-style-type: none"> • The end devices must be enclosed with enclosure batteries for field applications • The Programmable Intelligent End Device with USB interfaces, with ARM 7 Processor • Zig bee 2.4 GHz with antenna, Supporting various Network Topology • Onboard 20X4LCDdisplay, On Board Power supply (5V,3.3V) • I2C, SPI, UART, Modbus, Analog Digital sensor interface. 	04
	Agriculture Sensors for Agriculture Application (Must be compatible and interfaced to above sensor nodes and Scratch modules)	
	Soil Moisture Sensor for Agriculture Application temperature: -40°C-80°C; moisture: 0-100%; RS485/0-10V/0-5V/4-20mA Temperature accuracy:±0.5°C;	02
	Soil Temperature and Moisture Sensor for Agriculture Application Relative humidity and temperature measurement With dew point All calibration, digital output Excellent long term stability Waterproof package, and can be used for measurement of soil Low energy consumption Body dimensions: 14mm diameter, 50mm long Cable length: 1 ft Humidity readings with 4.5% accuracy Temperature readings with 0.5 degree C accuracy Working Temperature/Humidity range: -40°C ~ 120°C, 0~100% RH	04
	Wind Speed Wind Direction Rating gauge sensor for Agriculture Application Wind Vane, Cup Anemometer, Tipping Bucket Rain Gauge Two-Part Mounting Mast, Rain Gauge Mounting Arm, Wind Meter Mounting Bar	01
	Solar Radiation Sensor for Agriculture Application Range: 0 to 1800 W/ m2 Accuracy: ± 5% of full scale Drift: up to ± 2% per year	01

05.	Technical Specification for Scratch Module for IOT	
	IOT Sensor Node/Node for Scratch Module for IOT <ul style="list-style-type: none"> • Device should be with 32-bit ARM Cortex-M4-based microcontrollers • Should support 8 UART, 4 SPI, 6 I2C interface • Clock Speed of 80 MHz, Minimum 35 GPIO Pins • Should contain 256 KB Flash, 32 KB of SRAM and 2KB EEPROM • Capable of supporting Thumb and Math Instructions • On board JTAG emulator for programming • Should have USB 2.0 Host/Device/OTG + PHY • Should support Open source GUI for development IDE • Should have interface for connecting Sub1GHz RF, Wi-Fi, BLE, Zigbee modules • Sensor node should be capable of re-programming • Sensor Node should be capable of plugging Booster pack on top of it 	60
	IOT Wireless Sensor Node for Scratch Module for IOT <ul style="list-style-type: none"> • Device should be ARM Cortex M3 or above with 32 bit MCU • Integrated in depended Network processor for the communication activity • Should support IEEE 802.11 Wi-Fi on 2.4 GHz • Should support 8 simultaneous TCP/UDP sockets • Should have built in crypto engine for hardware security • Connectivity security with WPA, WPA2 or WEP methods • Onboard inverted-F antenna with RF connector for conducted testing • Onboard 1-MB serial flash memory • AAA battery connector interface • In built 9 low-power MEMS sensors Infrared Thermopile Sensor, Pressure Sensor, Humidity Sensor, Light Sensor, Gyroscope, accelerometer, and compass for easy integration in IoT application 	05
	IOT Gateway for Scratch Module for IOT <ul style="list-style-type: none"> • Processor: Octavo Systems OSD3358 1GHz ARM® Cortex-A8 • 512MB DDR3 RAM • 4GB 8-bit eMMC on-board flash storage • NEON floating-point accelerator • Debian with Cloud9 IDE on Node.js w/ BoneScript library • Third party support for Android and Ubuntu • USB client for power & communications • USB host, 802.11b/g/n and Bluetooth 4.1 plus BLE • 2x 46 pin headers • 12 bit ADC minimum 6 channels for analog interface 	30
	IOT Communication Module for Scratch Module for IOT <ul style="list-style-type: none"> • Wi-Fi Network Processor in QFN package • Includes software examples • Pre-certified for FCC/IC, CE, and ARIB radio standards • Debug interface for development of any Bluetooth low energy application • Bluetooth 4.2 specification certified 	05
	IOT Wifi Debugger for Scratch Module for IOT <ul style="list-style-type: none"> • FTDI debug support • Enables enumeration SPI & GPIO for Simple Link Studio for CC31xx • Enumerates COM port for flashing • Enables network processor logger output (TX only) • 2 USB ports • Booster Pack headers 	02

	IOT BLEDebugger for Scratch Module for IOT <ul style="list-style-type: none"> • FTDI debug support • Enables enumeration SPI & GPIO for SimpleLink Studio for CC26XX • Enumerates COM port for flashing • Booster Pack headers • The Debugger DevPack should include a USB power connection, making it easy to power SensorTag during debugging 	02
	IOT Sensor Booster pack for Scratch Module for IOT <ul style="list-style-type: none"> • Grove Starter Kit for Sensor Node • 1x Grove - Ultrasonic Ranger • 1x Grove - Light Sensor • 1x Grove - Buzzer • 1x Grove - Temperature and Humidity Sensor Pro • 1x Grove - 4-Digit Display • 1x Grove - Relay • 1x Grove - PIR Motion Sensor • 1x Grove - Moisture Sensor • 1x Grove - Sound Sensor • 1x Grove - Rotary Angle Sensor • 1x Grove Base BoosterPack 	05
	IOT Display Booster Pack for Scratch Module for IOT <ul style="list-style-type: none"> • Kentec TFT LCD (P/N: K350QVG-V2-F) • 3.5 inch QVGA (320x240 resolution) • SPI Interface • 4-wire resistive touch screen • White LED Backlight • LED backlight driver circuit • Should Comply with the Booster Pack standard for use with 20 and 40 pin 	05
	IOT Educational Booster Pack for Scratch Module for IOT <ul style="list-style-type: none"> • TI OPT3001 Light Sensor • TI TMP006 Temperature Sensor • Servo Motor Connector • 3-Axis Accelerometer • User Push Buttons • RGB Multi-color LED • Buzzer • 40-pin Stackable Booster Pack Connector • Color TFT LCD Display • Microphone • 2-Axis Joystick with Pushbutton 	05
	IOT Universal Mother Board for Scratch Module for IOT <ul style="list-style-type: none"> • Modules must be detachable and able to develop multiple IOT applications • 32 bit ARM® Cortex®-M4 Core with operating Frequency \geq 80MHz • FTDI based JTAG programming with USB Cable (IDE- Full Free Licence) • Embedded Memory: 8 MB flash, 256 KB RAM • 8 or 12 channel Direct Memory Access (DMA) • 2 Universal Asynchronous Receivers and Transmitters (UARTs) • 4-Channel 12-Bit Analog-to-Digital Converters (ADCs) • User LEDs and switches • USB to Serial Interface • SD/MMC Interface 	10

	<ul style="list-style-type: none"> • 4 General-Purpose Timers with 16-Bit Pulse- Width Modulation (PWM) Mode • Watchdog Timer • Advanced Low-Power Modes for Energy Efficiency • Ambient Temperature Range: -40°C to 85°C, Supply voltage: ≤5V • Wi-Fi Network Connectivity • Wi-Fi and Internet Protocols in ROM • 802.11 b/g/n Radio, Baseband, Medium Access • Control (MAC), Wi-Fi Driver, and Supplicant Station, AP, and Wi-Fi Direct™ Modes • WPA2 Personal and Enterprise Security • TCP/IP Stack – provide API and Details • Hardware Crypto Engine with 256-Bit AES – Encryption for TLS and SSL Connections ,CRC / Checksum • On-board antenna and provision for external antenna • Fast and Flexible WiFi Provisioning • IPv4 compatibility • Additional Peripherals: <ul style="list-style-type: none"> ○ Potentiometer interface for ADC input ○ Seven Segment Display ○ 16x2 Alphanumeric LCD ○ 8 bit single channel DAC ○ ULN2003 Interface ○ MAX 3232, RS232 Interface ○ 4 x 4 Matrix Keypad ○ Real Time Clock - RTC with Crystal – interface – SPI / I2C 	
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FORMAT OF QUOTATION

Sr. No.	Description Goods	Specifications	Qty.	Unit	Quoted Unit Rate in Rs.	Total Amount	
						In Figures	In Words

Gross Total Cost: Rs.

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs.(amount in figures) (Rs. amount in words) within the period specified in the Invitation for Quotations.

We also confirm that the normal commercial warranty/guarantee of months shall apply to the offered goods.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: _____

Contact No. _____