PURCHASE ORDER

Reference No:	**TEQIP-III/2018/duie/Shopping/13**
Date of Issue:	**22-May-2018**
Subject:	**DUIET/TEQIP9/ECE/PROJECT LAB**
Purchaser: **Technology, Dibrugarh**	**Dibrugarh University Institute of Engineering &** **Dibrugarh University, Dibrugarh, Assam- 786004.**
Supplier Name:	**VISHAL VYAPAR VIKASH** **Round Building, 1st Floor, A.T. Road, Athgaon, Guwahati -781 001 (Assam), Guwahati, Assam, 781001**

With reference to our correspondence, **Dibrugarh University Institute of Engineering & Technology, Dibrugarh** is pleased to award this detailed Purchase Order to **VISHAL VYAPAR VIKASH** for supply of items as per the details given below at a total cost of **3109155.00 (<In words>)**:

Sr. No	Item Name	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)	Delivery Period
1	70 MHz Digital Storage Oscilloscope with Built in Function Generator	2	54500	109000	30
2	Benchtop Multimeter 5 ½ Digit	2	53100	106200	30
3	PCB prototype machine	1	2040000	2040000	30

4	Regulated Multi output DC Power Supply	3	13300	39900	30
5	Soldering station	2	30500	61000	30
6	Spectrum analyzer	1	605000	605000	30

Total price (without taxes)	:	Rs. **2961100.00**
Total applicable taxes	:	**5** %
Total price (with taxes)	:	Rs. **3109155.00**
Total Octroi	:	Rs.

Delivery	:	**Dibrugarh University Institute of Engineering & Technology, Dibrugarh**
Testing/Installation Clause (if any)	:	**Yes**
Training Clause (if any)	:	**Yes**
Technical Specifications	:	As per Annexure - 1
Delivery Period	:	As specified for each item from date of issue of confirmed purchase order or as early as possible.
Warranty	:	**36**
Payment Terms	:	**Delivery and Installation - 100% of total cost** **Satisfactory Acceptance - 0% of total cost**

For

Dibrugarh University Institute of Engineering & Technology, Dibrugarh

(Authorized Signatory)

Director
Dibrugarh University Institute
of
Engineering & Technology, DU

Name & Designation

Accepted by

Signature

Date

Address

Annexure I

Sr. No	Item Name	Specifications
1	70 MHz Digital Storage Oscilloscope with Built in Function Generator	Specification: Bandwidth : 70 MHz (Should be future upgradable to 100MHz) Input Channel : 2 Max Memory Depth : 1Mpts Rise Time : = 5ns Max Sample Rate : 2GSa/s Input impedance/capacitance : 1M? ± 2%/16 pF ±3 pF Vertical Resolution : 8bits Input sensitivity range : 500µV/div to 10V/div Time base range : 5 ns/div to 50 s/div Horizontal Resolution : 2.5ps Waveform math : add, subtract, multiple, divide, FFT & Low Pass Filters Essential Facility : FFT with Span and Centre Frequency control, Bode Plot Test, User Configurable Hot-Key. Cursor : Both X & Y Courser should be available in FFT Mode with dB measuring Unit. Display Mode : Only FFT signal should be available without main signal Waveform rate : 50,000 waveform per second Trigger 65000 type : Edge,
2	Benchtop Multimeter 5 ½ Digit	• Instrument Should be 5 ½ Digit Dual display • Fast reading speed of up to 190 readings/sec • Multiple connectivity options – USB 2.0, Serial 65000 Interface (RS232) and GPIB • 11 measurement functions; DC voltage & current, True RMS, AC

		voltage & current, 2- and 4- wire resistance, frequency, continuity, diode test, capacitance and temperature • Ultra- bright OLED with dual display capability • Up to 50,000 memory points for data logging • Built-In Histogram function
3	PCB prototype machine	Technical specifications of PCB Prototyping Machine With Compatible Desktop Computer Prototyping Machine required for drilling, milling and routing of Bare PCBs with following System should have USB plug and play connection. ? System should have Automatic tools changer. ? System should have facility of automatic milling width adjustment. ? System should have solder paste dispensing facility. ? System should be upgradable to higher spindle speed. ? Machine should be capable to make polyamid stencil, and processes special films, aluminium panel engraving in addition to FR4, FR3, RT/Duroid, Kapton, LTCC (unfired) etc. ? System should have camera system for Fiducial recognition for front-to- back alignment. ? Machine should be capable to process single sided, double sided circuits. ? Machine should be supplied in acoustic cabinet. ? Vacuum table to be quoted, to hold the substrate firmly. ? Dust extraction system to be quoted, to run the machine Machine should be capable of making the PCBs with : Minimum track width : 0.1mm (4 mils) Minimum isolation width : 0.1mm (4 mils) Minimum drill hole diameter : 0.15mm Working area (X/Y/Z) : 229mm X 305mm X 35/22 mm Resolution : 0.02mil Milling motor rpm : atleast 50,000rpm, software controlled Tool change : Automatic tool change, should have min 10 tools position at a time to fed Travel speed : atleast 100mm per second Drilling speed : atleast 100 strokes per minutes Automatic X/Y positioning system and motorized Z drive Power supply : 240V, 50Hz Machine should be supplied with easy to use Software to operate, software should have the following capabilities ? Software should be able to import format: Gerber Standard (RS-274- D), Extended Gerber (RS- 274-X), Excellon NC Drill (Version 1 and 2), Sieb & Meier NC Drill, HPGL™, DPF, Auto- CAD™ DXF, ODB ++R. ? The software should be able to support the shapes like Circle, square, rectangle (also rounded or angled), octagon, oval, step, special (arbitrary definable ? The software should be able to export the file formats: Gerber Standard, Gerber Extended (RS- 274-X), Excellon NC Drill, HP-GL™, DXF, Bitmap, JPEG. ? The software should have the Editing functions: Original modification, relocating, duplicating, rotating, mirroring, erasing, extending/severing lines, line/ path extension/shortening, line path/segment parallel shifting, line path/object polygon conversion (Fill), curve linking/closing ? The software should have some Special functions for Routing path generator with breakout tabs, joining/separating objects, step & repeat (multiple PCB), polygon cutout, ground plane generation with defined clearance ? Marker functions for Single element, total layer, all layers, pad groups, ion and limiting to specific layers possible for lines/ polygons/ circles/ rectangles/ pads/ holes (multiple choice and restriction to specific layers possible) should be present in the Software ? The Graphic functions for Lines (open/closed), circle, polygon, rectangle, pad, hole, text (TTF, TTC) should be present in the software ? The measuring function should be for measuring & design rule check ? The software should have an Insulation methods for Single, insulation method, additional multiple insulation of pads, removal of residual copper spikes (spike option),milling out of large insulation areas (rub-out), concentric or in serpentines maintaining minimum insulation spaces, inverse insulation ? Hard-/software requirements Microsoft Windows 2000 or higher, 1.2 GHz Processor or better, min. 512

		MB RAM, screen resolution. min. XGA Accessories should be supplied with the prototyping machine: - Necessary drilling, milling and cutting tools in various diameter. - Provision for PISM and legend printing should be provided along with its systems and accessories. -Provision of making holes by automatic drilling
4	Regulated Multi output DC Power Supply	Constant Voltage & Constant Current operation Protection Against over load & short circuit Output DC: A: 30V/2A, B: 0 to ±15V/1A Dual Tracking, C: 5V/5A Voltage Setting Resolution:10mV Current Setting Resolution: 5mA Load Regulation: = ± (0.05% +10 mV) Line Regulation: = ± (0.05% +10 mV) Ripple & Noise: =1mVrms Internal Resistance: = 10mO Stability: = 2.5 mV at full load Current Limit Adjustment: 100mA to Max Display: Switchable 3 Digit seven segment LED for Voltage & Current Display Accuracy: V : ± (1% + 1 digit), I : ± (1% + 3 digit) Built-in overheat, over voltage protections Insulation: Between chassis & output terminal > 10 MW at 100 Vdc, chassis & AC plug > 50 MW at 500 Vdc
5	Soldering station	Accurate and advance temperature control with microcontroller technology -power consumption soldering : 60W - power consumption de-soldering : 70W - power consumption for SMD rework:270W -hot air temp:200-550°C -burn proof silicon cable with thermal resistance up to 600°
6	Spectrum analyzer	Instrument Should Have Following Features: a) One button measurement of Occupied Bandwidth, Cannel Power, Adjacent Channel Power and Adjacent Channel Power Ratio. b) Optional in-band on-channel (IBOC) measurement capability c) Optional AM / FM, ASK / FSK Measurement facility should available. d) Spectrum Emission Mask (SEM) should be a standard feature e) Marker measurement. f) Fast Sweep Speed. g) Optional 1 MHz to 3 GHz RF Preamplifier. h) Optional 3 GHz Tracking Generator. i) Optional Power Sensor Cunnectivity. Detail Technical Specification : 1. Frequency Range : 100 KHz – 3 GHz (Tunable to 9 KHz) 2. Aging Rate : ± 1 ppm/year 3. Marker Frequency Counter Resolution : 1 Hz 4. Frequency Span Range : 0 Hz, 1 KHz – 3 GHz 5. Resolution Bandwidth : 30 Hz to 1MHz in1-3- 10sequence 6. Video Bandwidth : 3 Hz – 1 MHz 7. Sweep Time : 10 ms to 1000 s, span 1 kHz < 120 ms at full span 8. SSB Phase Noise : -87 dBc at 30 KHz offset 9. Amplitude Range : - 124 (DANL) to + 20 dBm {- 144 dBm with Preamp} 10. Max Safe Input Level (Average continuous) : + 33 dBm 11. Input Attenuator Range : 0 – 51 dB in 1 dB Steps 12. Sweep Mode : Continuous, Single 13. Trigger Source : Free Run, Video, External 14. Trigger Delay Range : 6 us – 200 s 15. VSWR : Attenuator setting 0 dB < 1.8 : 1 16. Display : 6.5'' TFT screen with bright display for use indoors and outdoors. Resolution : 640 x 480 pixels 17. Battery Life : 4 Hours Minimum 18. Interface : LAN & USB 2.0