



# Poornima University Jaipur

Department of Electrical and Electronics Engineering

Address: Plot No. IS-2027-2031, Ramchandrapura, P.O. Vidhani Vatika,  
Sitapura, Extension, Jaipur, Rajasthan 303905

## TENDER DOCUMENT FOR PROCUREMENT OF EQUIPMENTS UNDER

**SERB, DST Project - "Numerical Simulation and Compact Modeling of  
Organic Thin Film Transistors for Future Flexible Electronics"**

**For**

**Research and Development Lab**

**Department of Electrical and Electronics Engineering**

**Poornima University, Jaipur**

Name of Supplier :-

Address :-

Contact Person :-

Phone :-

Fax:-

Email:-

Last date of submission of quotation : **15<sup>th</sup> December, 2017**



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**NOTICE INVITING QUOTATIONS**

Enquiry No.: PU/EEE/DST/001/2017

**Date: 20-11-2017**

To \_\_\_\_\_  
\_\_\_\_\_

Dear Sir,

Sub: Invitation for quotation for supply of **SILVACO TCAD and EDA (Smart Spice, Gateway and UTMOST-IV) Software, Vacuum Coating Unit, Precession source measuring unit, Computer and Printer.**

Science and Engineering Research Board (SERB), Department of Science and Technology (DST) Government of India has approved a project entitled **"Numerical Simulation and Compact Modeling of Organic Thin Film Transistors (OTFTs) for future Flexible Electronics"**.

Prospective suppliers are invited to submit their most competitive rates in the quotation for the Software, Hardware & other related equipments mentioned in the Annexure - I with the terms and conditions mentioned below & in the Annexure.

**TERMS & CONDITIONS – GENERAL**

1. Quotation must be Sealed, marked "PU/EEE/DST/001/2017 and be addressed to The Registrar, Poornima University, Jaipur
2. Each page of the quotation must be signed & sealed.
3. The quotation must reach at the Registrar Office on or before 15 Dec. 2017 by 16.00 Hours (4.00 PM).
4. The quotation must accompanied a demand draft in favour of POORNIMA UNIVERSITY, Payable at JAIPUR relating to Earnest Money calculated @ 1.00% of the cost of the item(s) quoted or Rs. 10,000/- whichever is higher.
5. Vendor must mention PAN Number.
6. Vendor can quote any of the item or items or all items as per Annexure – I.
7. PU reserve right to accept or reject any quotation(s) and / or to cancel the bidding process and / or reject all quotation at any time prior to the award of purchase order without assigning any reason thereof.
8. The quotation must accompany with Authorizing Letter from manufacturer. Vendor should provide Propriety Certificate for Proprietary items.
9. The vendor shall assure the assured the support and supply of spare for three years or more for the product quoted after expiry of Warranty / Guarantee period.
10. The quotation should contain detailed product technical specification, literature etc.

**RATE**

1. Rate must include all duties, taxes & other levies etc as applicable. However, GST, if any, must be mentioned separately.
2. Rate must be quoted F.O.R. basis at University site.
3. Rate must be valid up to 31<sup>st</sup> March, 2018.
4. Any discount including discount for educational institute / university should be mentioned in rate.

**PAYMENT**

1. No advance payment will be made for supply of software / hardware under this quotation.
2. 90% Payment will be made after delivery, satisfaction installation & demonstration and 10% after expiry of warranty period.

**DELIVERY**

The delivery of the quoted items should be within 4 weeks from the date of purchase order.

Yours faithfully,

**Registrar**

Seal and Signature of tenderer

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### Annexure - I

S.N.	Item	Specifications of the Software / Hardware	Quantity	Remark
1	Silvaco TCAD Omni with interactive tools	<p>Athena Framework:            Process Simulation Framework            S Suprem 4 2D Core Process Simulator            MC Implant Advanced Monte Carlo Implantation Simulator            Optolith Advanced 2D Optical Lithography Simulator            Elite Advanced Physical Etching and Deposition Simulator            MC Etch &amp; Deposit 2D Monte Carlo Deposition and Etch Simulator</p> <p>Atlas 2D Framework-            2D Device Simulation Framework</p> <p>S-Pisces 2D Silicon Device Simulator            Blaze 2D Device Simulator for Advanced Materials            MC Device 2D Monte Carlo Device Simulator            Giga 2D Non-Isothermal Device Simulator            Mixed Mode 2D Circuit Simulation for Advanced 2D Devices            Ferro Ferroelectric Field Dependent Permittivity Model            Magnetic 2D Magnetic Device Simulator            Quantum 2D Simulation Models for Quantum Mechanical Effects            Luminous 2D Optoelectric Device Simulator            LED Light Emitting Diode Simulator            VCSEL Vertical Cavity Surface Emitting Laser Simulations            Laser Semiconductor Laser Diode Simulator            TFT 2D Amorphous and Polycrystalline Device Simulator            Organic Display OLED and OTFT Organic Display Simulator            Organic Solar Organic Solar Cell and Photodetector Simulator            Noise 2D Small Signal Noise Simulator</p> <p>Atlas 3D 3D Device Simulation</p>	One	<p>One license of Silvaco TCAD Omni with specified modules (Three Years or more )            OR 100 token capable of running all the TCAD and EDA tools (Three Years or more )</p>



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		<p>Framework Framework</p> <p>Device 3D 3D Device Simulator</p> <p>Giga 3D 3D Non-Isothermal Device Simulator</p> <p>MixedMode 3D 3D Circuit Simulation for Advanced Devices</p> <p>Magnetic 3D 3D Magnetic Device Simulator</p> <p>Quatum 3D 3D Simulation Models for Quantum Mechanical Effects</p> <p>Luminous 3D 3D Optoelectric Device Simulator</p> <p>TFT 3D 3D Amorphous and Polycrystalline Device Simulator</p> <p>Thermal 3D Thermal Packaging Simulator</p> <p>TonyPlot Interactive 1D/2D Visualization Tool</p> <p>Interactive Tools</p> <p>TonyPlot 3D 3D Interactive Visualization Tool</p> <p>DevEdit Structure and Mesh Editor</p> <p>DevEdit 3D 3D Structure and Mesh Editor</p> <p>DeckBuild Run-Time Environment</p> <p>MaskViews Integrated Layout Editor</p>		
2	Gateway: Schematic capture (All modules)	<p>Hierarchical multi-view, multi-sheet editor supports large and highly complex designs</p> <p>Edit-in place functions with wires, busses, bus ripping and bus merging</p> <p>Wire to wire, wire to pin, wire by name and implicit/global connections</p> <p>Cross-probing between waveform display and schematic</p> <p>View Info via hierarchy: Ability to trace signals via levels</p> <p>Configurable rule checks show electrical drawing rule and netlist violations</p> <p>Device parameter, DC bias and threshold displays</p> <p>Encryption support for intellectual property protection</p>	One	<p>One license (Three Years or more)</p> <p>OR 100 token capable of running all the TCAD and EDA tools (Three Years or more)</p>
3	Smart Spice: Parallel SPICE Circuit Simulator (all modules) along with	<p>100% HSPICE™ and Spectre™ compatible for netlists, models, analysis features and results</p> <p>Large collection of calibrated SPICE models for traditional (Bipolar, CMOS) and advanced technologies (TFT, OTFT, SOI, HBT, FRAM,</p>	One	One license (Three Years or more)



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	Smart View	<p>FinFET etc.) Verilog-A based open model development environment and debug, with extensive analog behavioral capability Unique Rubberbanding feature that allows designer to modify model, instance and user-defined parameters and interactively see in SmartView how the simulation changes in real time All models support advanced convergence algorithms, temperature dependencies, montecarlo simulation. Batch and interactive modes of operation, plus ability to run directly from the Gateway Schematic Capture environment Parallel simulation using multiple 64-bit CPUs for near linear speedup Network distributed Monte- Carlo and worst case analysis SEE (Single Event Effects) reliability analysis for nanometer scale designs temperature, noise and SPICE parameters over full temperature and corner model statistical analysis</p>		OR 100 token capable of running all the TCAD and EDA tools (Three Years or more)
4	Utmost IV: Device Characterization and SPICE Modeling Tool (All modules)	<p>Can Store data in either the file system or in a database Automated measurement and SPICE model extraction of any device type Full control of all measurement conditions Over 100 different measurement instruments Open architecture instrument drivers can be modified or created by user Extract any compact, macro-model or Verilog-A SPICE model Combine direct extraction and parameter optimization techniques Simulate and optimize any combination of data including extracted data values Family of advanced optimizers, including genetic type optimizers High-speed multi-threaded SmartSpice interface Supports SmartSpice, HSPICE, Eldo and Spectre simulators Verilog-A model and extraction sequence co-development platform Integration with TCAD tools to provide process simulation to SPICE model development flow Store, share and re-use data using Firebird relational database Easy data import from TCAD simulation files</p>	One	One license (Three Years or more) OR 100 token capable of running all the TCAD and EDA tools (Three Years or more)
5	Precision Source / Measure Unit	Precision Source/MeasureUnit,2ch,100fA resolution,210V,3ADC/10.5A pulse	One	I-V and C-V of measuring capability (of MOSFET, OTFTs etc)



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6	Combo test lead kit	Compatible with item No-5	One	Compatible with item no-5
7	Kelvin probe set	Compatible with item No-5	One	Compatible with item no-5
8	Dell All-In-One 5459 Computer	Intel Core i5 6th gen/ 8 GB Ram/ 1TB or more HDD/ 23" Screen/ 4 GB Graphic Card/ KBD/Mouse/ win 10/ MS Office	One	
9	HP LASERJET 1005 MFP printer	Multi function printer	One	
10	Vacuum Coating Unit (based on turbo molecular pump and oil free rotary pump)	<p>1. Thermal coating unit should be fitted with a chamber having a height of 420 mm equipped with see through removable glass window. The chamber should be equipped with water flow line.</p> <p>2. Adjustable substrate holder having a separation of 10-30 cm from the filament.</p> <p>3. Another substrate holder, equipped with liquid nitrogen cooled cold-finger with thermocouple-based temperature meter.</p> <p>4. Substrate shutter and source shutter (adjustable height) to be operated from outside the belljar.</p> <p>5. The coating unit should be fitted with two thermal evaporation sources (200 Ampere each) to connect filaments and boats to be operated separately and simultaneously.</p> <p>6. Substrate holder to accommodate 4 inch × 4 inch substrate. Substrate holder should have two mechanical masks:</p> <p>a. One having openings of 1/8 inch, each separated by 1/8 inch</p> <p>b. Another having openings 1/6 inch, each separated by 1/8 inch</p> <p>7. An ion cleaning feed through which should be fitted in the evaporation chamber.</p> <p>8. Appropriate thickness monitor and quartz crystal with water supply connection to measure the thickness. Rate display resolution should be at least 0.01 Å/sec and thickness display resolution should be 0.001 KÅ.</p> <p>9. Thickness monitor should measure thickness within a range of 0 –500 nm or above. It should cover metal-density in the range of 0.5 –25, acoustics impedance range of 0.2-30, and tooling factor (%) of 1-100.</p> <p>10. Vacuum deposition chamber should be fitted with penning and pirani gauges to measure the appropriate pressures.</p> <p>11. The turbo molecular pump with appropriate pumping speed. It should be backed by an oil-free rotary pump.</p> <p>12. The chamber of coating unit should achieve a vacuum of better than <math>5 \times 10^{-7}</math> mbar.</p> <p>13. Automation interlock operation system and suitable compact water chillier with fitting, flexible hose etc should be provided by vendor.</p> <p>14. Warranty: 3 years after demo</p>	One	

**Registrar, Poornima University**



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Sr No	Description of Goods/ Specification	Quantity	Make & Model of Equip	Base Unit Price Rs. (A)	GST %	GST Amount Rs. (B)	Total Price (A+B) Rs.
1	Silvaco TCAD Omni with all interactive tools	1					
2	Gateway: Schematic capture (All modules)	1					
3	Smart Spice: Parallel SPICE Circuit Simulator (all modules) along with Smart View	1					
4	Utmost IV: Device Characterization and SPICE Modeling Tool (All modules)	1					
5	Precision Source/Measure Unit	1					
6	Combo test lead kit	1					
7	Kelvin probe set	1					
8	Dell All-In-One 5459 Computer	1					
9	HP LASER JET 1005 MFP printer	1					
10	Vacuum Coating Unit (based on turbo molecular pump and oil free rotary pump)	1					
TOTAL							

- We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs..... within the period specified in the Invitation for Quotations.
- We also confirm that the normal commercial warrantee / guarantee of 3 Years shall apply to the offered items.