

Please refer “SECTION VI - TECHNICAL SPECIFICATIONS” of Tender/ Quotation of Package Code: TEQIP-II/NITS/183 & Package Name: Modernizing/ECE/Thin Film and Nanoelectronics, Following are the changes made on the item specification as indicated below after the Pre-bid meeting held on 22th Aug 2016 at NIT Silchar. The last date of submission of tender is extended to 29.07.2016,12:00 Noon. All other conditions in the tender documents except stated above will remain same.

Sl. No	Name of Items	Specifications	Quantity
	Thermal Evaporator and E-Beam Evaporation Unit with water chiller	<p>The Chamber will be used for E-Beam Evaporation and Thermal Evaporation.</p> <p>COMMON VACUUM SYSTEM: Rotary vacuum pump: 585 lit/min, Vacuum measuring gauges (measurement from atmosphere to 10^{-6} mbar - 2's), Roughing and backing valve: manually operated quarter swing 1" butterfly type, Turbo Molecular pump: 350 Lit/sec, High vacuum Gate valve: 4" size, manually operated (2's), Air Admittance Valve (2's). The basic system is capable of giving vacuum level of $\sim 10^{-6}$ to 10^{-7} mbar</p> <p>THERMAL EVAPORATION SYSTEM: L.T. Power Supply, 2 sets of LT electrodes, Ion cleaning system: H.T Power supply Ion cleaning, 1 No. of HT Electrodes for Ion cleaning, Thickness Monitor (Digital): $\sim 0.00 - 999$ A°/sec</p> <p>ELECTRON BEAM GUN WITH POWER SUPPLY</p> <ul style="list-style-type: none"> • 4 no's, 4cc volume crucibles. • 270 deg beam deflection • X-Y beam sweep controller with independent control in both X and Y direction • Water cooling facility • Quick release electron emitter assembly • Motorized turret indexer for the electron beam source. Enables any of the four crucibles to be selected from the control panel. • 3KW electron beam power supply comprising a free standing power supply module and remote mounting high voltage and gun control panel. Operates at 5 KV. • Safety interlocks for air cooling, high vacuum cooling water and turret rotation. 	01

		<p>GLAD:</p> <ul style="list-style-type: none"> • A substrate mounting plate is fixed in the chamber with the capability of holding substrate size of 3’’ and tilt up to 0-180 deg (manually) with a rotation speed of 10-150 rpm with a substrate heating up to 300 deg C. <p>CHILLER:</p> <ul style="list-style-type: none"> • Suitable compact chiller water circulation system with re-circulating pump, valves, water flow switches, sensors <i>etc</i> capable of supporting Electron Beam Evaporator, Thermal Evaporator, and Thickness Monitor of the specification described above has to be included for necessary cooling. <p>FREE SUPPLY:</p> <ul style="list-style-type: none"> • First charge of oil for the vacuum pumps • Full O - ring set • One set of filaments • 6 nos of Graphite Crucibles • 6 nos of Molybdenum Crucibles • 2 pack of Tungsten Basket • 2 pack of Tungsten helicals • 4 nos of Molybdenum boats • 5 nos of quartz crystal of Film Thickness monitor <p>NECESSARY CRITERIA:</p> <ul style="list-style-type: none"> ➤ The vendor should have supplied minimum 5 no’s of above mentioned Electron Beam Gun to the Reputed Institute/R&D laboratories in the last 5 years. List of customer with their corresponding address (with email ids, phone no) has to be provided by the vendor. ➤ Compliance Statement of all the listed specifications should be indicated on a separate sheet. ➤ The vendor should be ISO certified. ➤ The Vendor must submit Original Invoice, Original Warranty Certificate and Original Test Certificate for Imported Items. 										
	Consumables	<table border="1"> <thead> <tr> <th colspan="2" data-bbox="472 1591 1276 1629">Materials Detailed Specifications</th> <th data-bbox="472 1591 1276 1629">Quantity</th> </tr> </thead> <tbody> <tr> <td data-bbox="472 1629 716 1738">Si Wafer: P Type (100)</td> <td data-bbox="716 1629 1276 1738">Si (100) prime grade, P type, B- doped, 4’’ in dia x 0.25 mm thk, Resistivities: 1-10 ohm-cm, one side polished</td> <td data-bbox="472 1629 1276 1738">5 No.</td> </tr> <tr> <td data-bbox="472 1738 716 1852">Si Wafer: N Type (100)</td> <td data-bbox="716 1738 1276 1852">Si (100) prime grade, N type, P- doped, 4’’ in dia x 0.25 mm thk, resistivities: 1-10 ohm-cm, one side polished</td> <td data-bbox="472 1738 1276 1852">5 No.</td> </tr> </tbody> </table>	Materials Detailed Specifications		Quantity	Si Wafer: P Type (100)	Si (100) prime grade, P type, B- doped, 4’’ in dia x 0.25 mm thk, Resistivities: 1-10 ohm-cm, one side polished	5 No.	Si Wafer: N Type (100)	Si (100) prime grade, N type, P- doped, 4’’ in dia x 0.25 mm thk, resistivities: 1-10 ohm-cm, one side polished	5 No.	
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	ITO coated Glass Substrate	ITO Coated Glass Substrate 1.0" x 3" x 0.7 mm, R: 6-7 ohm/sq, Nominal ITO film thickness: 250 nm+/-25nm	20 No.
	Aluminum (Al), Copper (Cu), Indium (In) and Titanium (Ti)	Evaporation Materials Purity: 99.99% Size: 3 mm – 12 mm Random Pieces (Note: Compatible with e-beam evaporation and thermal evaporation)	50 gram (for each materials)
	Silver (Ag),	Silver (Ag) Evaporation Material Purity: 99.99% Size: 3 mm – 12 mm Random Pieces (Note: Compatible with e-beam evaporation and thermal evaporation)	50 gram
	Gold (Au)	Size: 3 mm – 5 mm Random Pieces (cylindrical shape) Purity: 99.99 % (Note: Compatible with e-beam evaporation)	10 gram
	TiO ₂	Titanium Oxide (TiO ₂) Evaporation Material, Purity: 99.99% Size: 3 mm – 12 mm Random Pieces (Note: Compatible with e-beam evaporation)	50 gram
	ZnO	Zinc Oxide (ZnO) Evaporation Material Purity: 99.99% Size: 3 mm-12 mm Random Pieces (Note: Compatible with e-beam evaporation)	50 gram
	HfO ₂	HfO ₂ Evaporation Material, Purity: 99.99% Size: 3 mm – 12 mm Random Pieces (Note: Compatible with e-beam evaporation)	50 gram
	Cu ₂ O	Cu ₂ O Evaporation Material, Purity: 99.99% Size: 3 mm – 12 mm Random Pieces (Note: Compatible with e-beam evaporation)	50 gram
	(Sulphuric Acid, Hydrofluoric Acid, Nitric acid, NH ₄ OH, Trichlorethylene)	Electronic Grade Chemicals (Purity: 99.999%)	500 ml
	Methanol and Ethanol etc.	Electronic Grade Chemicals (Purity: 99.999%)	2.5L each
	Acetone	Electronic Grade (Purity: 99.999%)	5 L

		Nitrogen and Oxygen gas in cylinders Pressure gages with flow meter	Highly pure (Laboratory purpose)	1 cylinder each with flow meter
		Quartz Boat	<ul style="list-style-type: none"> Quartz boat is made of ultra-high purity quartz (4N purity) with 1200°C working temperature Dimension: 115 mm L x 60 mm W x 26 mm H Quartz Thickness: 4-5mm 	4
		Metal Storage Cabinet	Size: 1850mm x 900mm x 450 mm. Quality powder coated finish	1
		Silicon Tape	Size: ~1'x3 meter (Temperature up to: 200 °C)	2
		Glass Beakers	50 ml (good quality)	10
			100 ml (good quality)	10
			250 ml (good quality)	5
		Glass Substrate	Normally used for laboratory purpose (good Quality)	50 pieces
		Desiccator	<ul style="list-style-type: none"> solid and rigid structure made of high-intensity polycarbonate materials Humidity level display Temperature changes automatically with environment Dust, mildew, and moisture proof Can be operated WITHOUT a power supply and design is free of fragile moisture absorption reading electronics Max. Vacuum level: 225 torr Chamber volume: 11 liters External dimensions: 320mm W x 240mm D x 260 mm H 	1

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Director
NIT Silchar