

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA, ODISHA  
(Formerly University College of Engineering, Burla)

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**TENDER CALL NOTICE**

**No. VSSUT/MECH/3148/2017**

**Date: 18<sup>th</sup> September 2017**

**Sub: Tender Call Notice for supply of a various machines with their technical specifications.**

The Registrar, "Veer Surendra Sai University of Technology (VSSUT), Burla" invites sealed tender from intending reputed and experienced firms for Supply, Installation and Maintenance of equipment for **Mechanical Engineering Department** (the list of equipment are mentioned in the following table) at the University website. This tender documents must reach to "**The Registrar, Veer Surendra Sai University of Technology, Burla, Sambalpur-768018 (Odisha)**" by **5 PM of 17<sup>th</sup> October 2017** under a sealed cover superscribed as Equipment for Mechanical Engineering Department by **registered/speed post only**. The tender received after the due date and time is liable to be rejected. Tender by hand/FAX/ e-mail will not be entertained.

The Bidders may download the **Tender Documents** directly from the website available at **http://www.vssut.ac.in** and the Tender cost fee of Rs.500.00 (Non-refundable) by way of separate Demand Draft drawn in favour of "**The Registrar, Veer Surendra Sai University of Technology, Burla**" payable at **SBI, Burla** should be enclosed along with the Bid. The Tender cost fee and the EMD amount should be submitted separately in separate demand drafts. The tender fee must be submitted along with the tender paper, otherwise the tender paper shall be liable for rejection. In case of any bid clarification, responsibility lies with the bidders to collect the same from the website and the purchaser shall have no responsibility for any delay/omission on part of the bidder.

**TIME SCHEDULE:**

- Price of bidding document: Rupees 500.00 (Non-refundable)
- Date of commencement of downloading bidding document **5 PM of Date 19<sup>th</sup> September 2017.**
- Last date and time for Receipt of bids **5 PM of Date 17<sup>th</sup> October 2017.**
- Time and date of opening of Tender and technical bid **12 PM of Date 19<sup>th</sup> October 2017**
- Place of Opening of Tender and Address for Communication and Receipt of Bid Documents

**THE REGISTRAR****VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, ODISHA****At- Burla, Po-Burla Engineering College, Dist-Sambalpur-768018,****Tel. No-0663-2430211 Fax No-0663-2430204**


**REGISTRAR**  
**VSSUT Burla**  
**REGISTRAR**  
**V.S.S. University of Technology**  
**Burla, Sambalpur, Odisha-768011**

**ITEM 1****Technical Specifications of INSTRON 2630-100 SERIES STRAIN GAUGE EXTENSOMETER**

Sl. No.	Parameters	Part/Specification
1.	Gauge Length	80 mm
2.	Gauge Length Accuracy	±0.5% at gauge length
3.	Repeatability	Better than 0.1% FRO (Full Range Output)
4.	Hysteresis	Better than 0.3% FRO
5.	Balance	Better than ±2.5% FRO
6.	Excitation	1 V to 5 V RMS, DC to 5 kHz
7.	Sensitivity	2.5 mV/V (± 20%)
8.	maximum strain	+50% -5%
9.	Gauge length setting	Static-rated with cross-braced design and cone-latch.
10.	Metric Calibration	Self-identifying only with 3300, 4200, 4300, 4400, 4500, 5500, 5800, 5900, 8500 and 8800 Series Systems.
11.	Operating temperature range	-100 °C to +200 °C
12.	Warranty	Minimum 1 year

\*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 2****Technical Specifications of DIGITAL IMPACT MACHINE WITH PC VIEW**

Sl. No.	Parameters	Specification
13.	Capacity	Max. Capacity : 300-350 J/160- 180 J
14.	Minimum Scale Graduation	0.1 J
15.	Overall Size (Approx.)	1.1m x 0.45m x 1.65 m (H)
16.	Weight	350- 500 Kg
17.	Others	Panel should be able to at least 15 results, Display results, Transfer results to PC through software. The software will show the results in the PC
18.	Feedback system	Digital Touch Screen Model with encoder, software

19.	Accessories	<ul style="list-style-type: none"> <li>• Specimen setting &amp; centering tong for Charpy test ( useful particularly for carrying out test at sub-zero temp)</li> <li>• Gauge for checking distance of specimen notch from both end for charpy and Izod test</li> <li>• specimen, One Gauge for Charpy and One gauge for Izod.</li> <li>• Specimen clamp for round Izod specimen.</li> <li>• Gauge for checking standard U notch on specimen.</li> <li>• Gauge for checking standard V notch on specimen.</li> <li>• Gauge for checking depth below the standard U notch on Specimen.</li> <li>• Gauge for checking depth below the standard V notch on Specimen.</li> <li>• Template for checking cross section of 10 x 10 mm for Izod &amp; Charpy square test specimen.</li> <li>• U notch milling Cutter</li> </ul>
20.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 3**  
**Technical Specifications of ERICHSON CUPPING MACHINE**

Sl. No.	Parameters	Specification
1	Width of sample	70-90 mm
2	Thickness of sample	0.1 mm to 2 mm
3	Least count	0.01 mm
4	Overall Dimensions (Approx)	450 mm x500 mm x500 mm
5	Net weight (Approx)	20 Kg
6	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 4**  
**Technical Specification of MICROPROCESSOR BASED SOUND LEVEL METER**

Sl. No.	Parameters	Specification
Hand held sound level meter cum analyzer with 1/1 & 1/3 octave frequency analysis		
1.	Measurement Range	120 dB dynamic range - upto 140 dB, Large, high-resolution, touch-sensitive screen
2.	DISPLAY Type	Transflective back-lit touch screen, 240 - 320 dot matrix Black and white scheme
3.	Backlight	Adjustable level and on-time Multi-lingual user interface, 'Traffic Light' status indicator Plug-in rechargeable Li-ion battery

4.	Operating Time	>10 h (screen backlight dimmed); >7 h (full screen backlight)
5.	Data storage	on plug-in memory cards or USB flash drive, Back-erase to delete unwanted noise events, PC software for archiving, exporting and reporting Robust and environmentally protected (IP 44), IEC/ANSI SLM standards Type/Class 1 Real-time sound and frequency analysis in 1/1- and 1/3-octave bands, 1/1-octave spectra (centre frequencies 8 Hz to 16 kHz), 1/3-octave spectra (centre frequencies 6.3 Hz to 20 kHz). Broadband statistics based on LAeq, LAF or LAS, Broadband frequency range: 3 Hz – 20 kHz
6.	A- or B-weighted	(Switchable) broadband detector channel with three exponential time weightings (Fast, Slow, Impulse), one linearly averaging detector and one peak detector
7.	C- or Z-weighted	(Switchable) as for A- or B-weighted, Overload Detector should monitor the overload outputs of all the frequency weighted channels
8.	MEASUREMENTS	X = frequency weightings A or B, Y = frequency weightings C or Z, V = frequency weightings A, B, C or Z, U= time weightings F or S, Q= exchange rate 4, 5 or 6 dB, N= number between 0.1 and 99.9
9.	Battery Indicator	Remaining battery capacity and expected working time may be read out in % and time , Should conform to the following National and International Standards: IEC61672–1 (2002–05) Class 1, • IEC60651 (1979) plus Amendment 1 (1993– 02) and Amendment 2, (2000–10), Type 1, • IEC60804 (2000–10 ), Type 1, • DIN 45657 (1997–07), • ANSIS1.4–1983 plus ANSI S1.4A–1985 Amendment, Type 1. • ANSIS1.43–1997, Type 1 TEMPERATURE IEC 60068–2–1 & IEC 60068–2–2: Environmental Testing. Cold and Dry Heat,
10.	Operating Temperature	–10 to + 50°C (14 to 122°F), <0.1 dB
11.	Storage Temperature	–25 to +70°C (–13 to +158°F)
12.	Warranty	Minimum 1 Year
13.	*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.	

## ITEM 5

### Technical Specification of INFRARED THERMAL CAMERA

Sl. No.	Parameters	Specification
1.	Measurement Range	-20 °C to 1200 °C
2.	Accuracy	± 2 °C or 2 %
3.	On-screen emissivity correction	0.1 to 1.0
4.	On-screen reflected background	Shall be available in the Camera temperature compensation

5.	On-screen transmission correction	Shall be available in the Camera
6.	Detector type	Minimum 320 X 240 Pixels, Focal Plane Array, uncooled microbolometer
7.	Thermal sensitivity (NETD)	≤ 0.05 °C at 30 °C target temp or better
8.	Infrared spectral band	7.5 μm to 14 μm (long wave)
9.	Visual (visible light) camera	Industrial performance - 5MP
10.	Blending of IR & Visual Images	Shall be available in the Camera
11.	Picture in Picture Capability	With Thermal Image in the Centre of the Screen shall be available
12.	Display	Ruggedized Touchscreen Display (Capacitive) Min 3.5 in diagonal color VGA (640 x 480) LCD with backlight
13.	Measurement Modes	User selectable hot spot and cold spot, and Center point on the image Up to Three Movable Cursors
14.	Color alarms (temperature alarms)	High-temperature, low-temperature, and isotherm
15.	Palettes	Standard Ironbow, Blue-Red, High Contrast, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted & Ultra Contract Palette Option
16.	Level and span	auto/manual -scaling
17.	Storage medium	Memory Card, on-board flash memory, save-to-USB capability
18.	Memory review	Thumbnail view navigation and review selection, Sequential image navigation and review
19.	Voice annotation	60 seconds maximum recording time per image; reviewable playback on imager
20.	Text Annotation	Shall be Possible
21.	Photo Annotation	Shall be possible to store up to three visual images of the object for easier identification at a later date.
22.	Focus	Manual and Laser Guided auto Focus based on distance measured. Thermal Imager should be able to focus on the image based on the distance measured with a inbuilt laser distance meter. MultiSharp™ Focus focused near and far, throughout the field of view.
23.	Digital zoom	2x and 4x
24.	Streaming Video output	Via USB to PC and HDMI to HDMI compatible screen
25.	Electronic Cardinal Compass	Should have an inbuilt Electronic compass to record the direction along with the image

26.	Auto Capture	Should be able to auto capture based on user selectable on time or temp inputs
27.	Remote Operation	Shall be possible to control the camera through a PC
28.	Batteries	Minimum Two lithium ion rechargeable batteries. Batteries should have 5-segment LED display to show charge level.
29.	Battery life	Minimum Four hours continuous use per battery pack
30.	Battery charge	Less than 2.5 hours to full charge
31.	AC battery charging	Two-bay ac battery charger
32.	AC operation	With included power supply (110 V to 220 V AC, 50/60 Hz)
33.	LENS Standard infrared lens	Field of view : 24 ° x 18 ° Spatial resolution (IFOV) : 1.31 mRad Minimum focus distance : 15 cm
34.	Tele Photo Lens	Field of view : 12 ° x 9 ° Spatial resolution (IFOV) : 0.65 mRad Minimum focus distance : 45 cm
35.	Operating temperature	-10 °C to +50 °C
36.	Relative humidity	10 % to 95 % non-condensing
37.	Safety standards	CSA (US and CAN): C22.2 No. 61010-1-04 UL: UL STD 61010-1 (2nd Edition), ISA: 82.02.01
38.	Electromagnetic compatibility	Should Meet all applicable requirements in EN61326-1:2006C Tick IEC/EN 61326-1 US FCC CFR 47, Part 15 Class B
39.	Vibration	0.03 g <sup>2</sup> /Hz (3.8 grms), IEC 68-2-6
40.	Shock	25 g, IEC 68-2-29
41.	Drop	2 meter
42.	Weight (battery included)	Less than 1.2 kg
43.	Enclosure rating	IP54 (protected against dust, limited ingress; protection against water spray from all directions)
44.	<b>Accessories</b>	Thermal imager with standard infrared lens; ac power supply and battery pack charger (including mains adapters); two, rugged lithium ion battery packs; SD memory card; USB memory card reader for downloading images into your computer; Software with free software upgrades for life; rugged, hard carrying case; soft transport bag; adjustable hand strap; printed user's manual; Training CD/DVD.
45.	Software	

	Full analysis and reporting software to be included free of cost with the supply. Software shall be licence free and all upgrades for the software to be provided free of cost. The Software shall have minimum of the following features.	
	<ul style="list-style-type: none"> <li>• Complete Analysis of the Thermal Imager</li> <li>• Capability to add comments &amp; remarks in the Image</li> <li>• 3D IR Analysis of the Thermal Images</li> <li>• Generate Reports automatically</li> <li>• Add visual images in the Reports</li> </ul>	
46.	Warranty	Minimum 2 Years
47.	*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.	

### ITEM 6

#### Technical Specification of ACCELEROMETER

Sl. No.	Parameters	Specification
1.	IEPE Accelerometer	TEDS, 100mV/g, side connector, insulated base
2.	Other Items	Including Cable (coax, 10-32UNF(M) to BNC(M), 3mts, Max 80°C) & Mounting magnet and two insulating disc
3.	Warranty	Minimum 1 Year
4.	*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.	

### ITEM 7

#### Technical Specifications of UPGRADATION OF OLYMPUS MAKE INVERTED MICROSCOPE GX1

Sl. No.	Parameters	Part/Specification
1.	Transmitted Light Guide Adapter	SZX-TLGAD
2.	Light Guide	LGSF
3.	Light Guide Power Supply	LG-PS2
4.	Resolution: 1920 x 1440 pixels, Binning: 2x2, Colour CCD Sensor, Pixel	DP22
5.	Cell size: 3.4x3.4 µm, Exposure Time: 50 µs to 8 second, Frame Transfer Rate: 25 Frames per second, Image Adjustment: Colour, Contrast, Sharpness Filter, White Balance, C-Mount Adapter with 0.5X lens	U-TV0.5XC-3
6.	<b>Software Details</b>	
7.	Olympus Stream Basic Software	ST-BA-V2.2
8.	Phase contrast	ST-S-APHS-V2.2
9.	Grain Size Planimetry	ST-S-GSPL-V2.2
10.	DVD	ST-DVD-V2.2

11.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 8**  
**Technical Specifications for AIR JET EROSION TESTER**

Sl. No.	Parameters	Specification
21.	Fluid-Air	i. Temperature: Ambient ii. Pressure: 5 bar max. iii. Nozzle: Tungsten Carbide
22.	Particle	i. Temperature: Ambient ii. Velocity: up to 100m/s max. iii. Feed rate: 2 to 10 gm/min continuously variable
23.	Specimen Size	25mm X 25mm max and thickness 5 mm
24.	Impingement Angles	15 <sup>0</sup> C, 30 <sup>0</sup> C, 45 <sup>0</sup> C, 60 <sup>0</sup> C, 75 <sup>0</sup> C, 90 <sup>0</sup> C
25.	Nozzle size	Diameter 3 mm tungsten carbide nozzle
26.	Power	Single Phase, 230V, 15 Amps
27.	Double disc arrangement for particle velocity measurement. Erodent collection after testing in fully enclosed removable enclosure. Sound and dust proof chambers.	
28.	Accessories: i. Particle Velocity Meter (Double disc arrangement) ii. Pressure Regulator and Gauge iii. Pressure Gauge iv. Operating and Maintenance Manuals	
29.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 9**  
**Technical Specifications of AIR COMPRESSOR**

Sl. No.	Parameters	Specification
1.	Air Intake	0-200 cfm
2.	Output Pressure	8-10 Bar
3.	Air Tank Capacity	100 litres
4.	Compressor Mounting	Skid/Base Plate
5.	Cooling Method	Air Cooled
6.	Lubrication Style	Oil Free



7.	Power	2.5 HP/3 HP
8.	Power Source	AC Three Phase
9.	Compressor speed	1200 rpm
10.	No. of cylinder	02
11.	Warranty	2 Years

\*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 10**  
**Technical Specifications of CUTTING INSERTS AND TOOL HOLDER**

Sl. No.	Parameters	Specification	Quantity
Machining of Non-ferrous Materials with PCD inserts			
1.	Right Hand Tool Holder	SCLCR2525M09	1
2.	Polycrystalline Diamond (PCD) brazed on cemented carbide insert	CCGW09T304FST	10
Machining of Ferrous Materials with coated inserts			
3.	Right Hand Tool Holder	MSBNR2525M12	1
4.	Inserts (MTCVD-TiCN-Al <sub>2</sub> O <sub>3</sub> ) coating with superior interlayer adhesion	SNMG120408MN	10
5.	Multilayer(MTCVD-TiCN-Al <sub>2</sub> O <sub>3</sub> -TiOCN coating with super interlayer adhesion	SNMG120408MR	10
6.	Inserts (MTCVD-TiN-TiCN-Al <sub>2</sub> O <sub>3</sub> -TiN Coated)	SNMG120408H	10
7.	An Advanced PVD AlTiN coating	SNMG120408MP	10
8.	Right Hand Tool Holder	MCLNR2525M12	1
9.	Inserts (MTCVD-TiCN-Al <sub>2</sub> O <sub>3</sub> coating with superior interlayer adhesion	CNMG120408MN	10
10.	Multilayer(MTCVD-TiCN-Al <sub>2</sub> O <sub>3</sub> -TiOCN coating with super interlayer adhesion	CNMG120408MR	10
11.	Inserts (MTCVD-TiN-TiCN-Al <sub>2</sub> O <sub>3</sub> -TiN Coated)	CNMG120408H	10
Machining of Ferrous Materials with Ceramic inserts			
12.	Right Hand Tool Holder	CSRNR2525M12-MN4	1
13.	Inserts (whisker ceramic with a matrix of Al <sub>2</sub> O <sub>3</sub> +SiCw)	SNGN120408T01020	10
14.	PVD TiN coated Composite Ceramic (Al <sub>2</sub> O <sub>3</sub> /TiCN)	SNGN120408T01020	10
15.	Right Hand Tool Holder	CCLNR2525M12-MN4	1
16.	Inserts (whisker ceramic with a matrix of Al <sub>2</sub> O <sub>3</sub> +SiCw)	CNGN120408T01020	10

17.	PVD TiN coated Composite Ceramic (Al <sub>2</sub> O <sub>3</sub> /TiCN)	CNGN120408T01020	10
Machining of Ferrous Materials with CBN inserts			
18.	Right Hand Tool Holder	MSBNR2525M12	1
19.	Tip Type CBN Insert with top advanced PVD nano composite coating	SNGA120408S01225MT	10
20.	Tip Type CBN Insert with top PVD TiAlN Coating	SNGA120408S01025MT	10
21.	Right Hand Tool Holder	DCLNR2525M12KC04	1
22.	Tip Type CBN Insert with top advanced PVD nano composite coating	CNGA120408S01225MT	10
23.	Tip Type CBN Insert with top PVD TiAlN Coating	CNGA120408S01025MT	10
24.	Warranty	Minimum 1 year	
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.			

**ITEM 11**  
**Technical Specifications of ULTRASONIC FLAW DETECTOR**

Sl. No.	Parameters	Part/Specification
1.	Pulser	PerfectSquare™ tunable square wave pulser with minimum Pulser Voltage of 400 V
2.	Pulse width	Adjustable from 25 ns to 5,000 ns (0.1 MHz) with PerfectSquare™ technology
3.	Damping	50, 100, 200, 400 Ω
4.	PRF(Pulse Repetition Frequency)	- 10 Hz to 2000 Hz in 10 Hz increments
5.	Display dimensions (W x H, Diag.)	117 mm x 89 mm, 146 mm
6.	Display Type	Sunlight readable display with Full VGA (640 x 480 pixels) transfective color LCD, 60 Hz update rate
7.	Transducer connections	BNC or Number 1 LEMO
8.	Battery life	Single lithium-ion rechargeable battery with minimum capacity of 15 h to 16 h
9.	Gain	0 to 110 dB
10.	Maximum input signal	20 V p-p
11.	Receiver input impedance	400 Ω ± 5%
12.	Receiver bandwidth	0.2 MHz to 26.5 MHz at -3 dB
13.	Digital filter settings	Eight digital filter sets standard (0.2-10 MHz, 2.0-21.5 MHz, 8.0-26.5 MHz, 0.5-4 MHz, 0.2-1.2 MHz, 1.5-8.5 MHz, 5-15 MHz, DC-10 MHz)
14.	Rectification	Full-wave, Positive Half-wave, Negative Half-wave, RF
15.	System linearity	Horizontal : ± 0.5% FSW

16.	Resolution	0.25% FSH, amplifier accuracy $\pm$ 1dB
17.	Reject	0 to 80% FSH with Visual Warning
18.	Amplitude measurement	0 to 110% full screen height with 0.25% resolution
19.	Data storage	50,000 IDs onboard, removable 2 GB MicroSD card (standard)
20.	Software for Data Transfer	Recent Version has to be provided
21.	Measurement rate	Equivalent to PRF in all modes
22.	Automated calibration	Velocity, Zero Offset, Straight Beam (First Backwall or Echo-to-Echo), Angle Beam (Soundpath or Depth)
23.	Test modes	Pulse Echo, Dual, or Through Transmission
24.	Units	Millimeters, inches, or microseconds
25.	Range	3.36 mm to 13,405 mm @ 5,900 m/s
26.	Velocity	635 m/s to 15240 m/s
27.	Zero offset	0 to 750 $\mu$ s
28.	Display delay	-59 mm to 13401 mm @ longitudinal velocity in steel
29.	Refracted angle	0° to 85° in 0.1° increments
30.	Measurement gates	2 fully independent gates for amplitude and TOF measurements
31.	Gate start	Variable over entire displayed range
32.	Gate width	Variable from Gate Start to end of displayed range
33.	Gate height	Variable from 2 to 95% full screen height
34.	Alarms	Positive and Negative Threshold, Minimum Depth (Gate 1 and Gate 2)
35.	Measurement display locations	5 locations available (manual or auto selection)
36.	Measurement in Gate (1, 2)	Thickness, Soundpath, Projection, Depth, Amplitude, Time-Of-Flight, Min./Max. Depth, Min./Max. Amplitude
37.	Other measurements	Overshoot (dB) value for DGS/AVG, ERS (equivalent reflector size) for DGS/AVG, AWS D1.1/D1.5 rating (D), Reject Value
38.	DAC/TVG	Standard, Up to 50 points, 110 dB dynamic range
39.	Special DAC modes	Custom DAC (up to 6 curves)
40.	Curved surface correction	Standard OD or Bar correction for Angle Beam measurements
41.	Instrument Inputs/Outputs	USB ports: USB On-The-Go (OTG)
42.	Video output	VGA output standard
43.	Protection	Water and Dust Resistant – IP66, Shock tested and Vibration Tested
44.	International Standard	Designed to meet the requirements of EN12668-1
45.	Environmental Ratings	IP rating: Designed to meet the standards of the Ingress Protection (IP) rating IP66 (knob version) per IEC 60529-2004 (Degrees of Protection provided by enclosures – IP Code). Explosive atmosphere: Safe operation as defined by Class I, Division 2, Group D, as defined in the National Fire Protection Association Code (NFPA 70), Article 500, and tested using MIL-STD-810F Method 511.4, Procedure I
46.	Shock tested	MIL-STD-810F, Method 516.5 Procedure I, 6 cycles each axis, 15g, 11 ms half sine
47.	Vibration tested	MIL-STD-810F, Method 514.5, Procedure I, Annex C, Figure 6, general exposure: 1 hour each axis
48.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above		

specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 12**  
**Technical Specifications of DIGITAL VISCOMETER**

Sl. No.	Parameters	Specification
1	Direct reading of viscosity	Cp OR mPa.s
2	Accuracy	±1.0% of Range
3	Repeatability	±0.2%
4	Accessible to computer	Yes
5	Speed selection RPM, Spindle selection facility	Yes
6	Brand	Reputed
7	Warranty	Minimum 1 year

\*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 13**  
**Technical Specifications of MODULAR AIR FLOW BENCH**

Sl. No.	Parameters with Part/Specification
25.	<p>A mobile bench providing the base unit for a wide range of air flow experiment modules</p> <ul style="list-style-type: none"> <li>• The base unit for a comprehensive system for teaching aerodynamic principles</li> <li>• Works with a number of different interchangeable experiment modules each designed to convincingly demonstrate a particular air flow principle or phenomena</li> <li>• Easy setup, all the experiment modules can be fitted and removed in minutes</li> </ul>
26.	<p><b>Standard Features</b></p> <ul style="list-style-type: none"> <li>• Supplied with comprehensive user guide</li> <li>• Manufactured in accordance with the latest European Union directives</li> </ul>
27.	<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>• A vertical, small scale wind tunnel with electric fan and adjustable air flow control</li> <li>• Fitted onto a steel frame which incorporates shelves and storage space</li> <li>• Each experiment module fits on to a plenum chamber with toggle clamps</li> <li>• Quick release couplings for pressure measurement connections</li> <li>• Aerodynamically shaped contraction</li> <li>• Discharge from the test section is directed towards the bench top, in which a circular hole is to be provided to collect the air so that it may be led through a duct to the rear of the bench</li> <li>• Air flow: 30 m.s<sup>-1</sup> in 100 x 50 mm working section (9 m<sup>3</sup>.min<sup>-1</sup>)</li> <li>• Nett dimensions and weight: 740 mm front to back x 950 mm wide x 1900 mm high, 125 kg</li> <li>• Packed dimensions and weight: 2.37 m<sup>3</sup>, 150 kg</li> </ul>
28.	<p><b>Specification of Essential Ancillary: Multi-Tube Manometer</b> For measuring multiple air pressures on the different modules of the <b>Modular Air Flow Bench</b></p> <ul style="list-style-type: none"> <li>• Inclined 14x tube manometer</li> <li>• Uses water for safety and simplicity</li> </ul>

	<ul style="list-style-type: none"> <li>• Adjustable height datum and levelling feet</li> <li>• Quick-release couplings for ease of use</li> <li>• Includes non-toxic coloured dye to see water levels clearly</li> <li>• Effective measurement range 260 mm</li> <li>• The reservoir for the manometer liquid is mounted on a vertical rod so that it may be set to a convenient height</li> <li>• The manometer can be inclined through 80° to lie nearly horizontal, and positioned at any angle to give a scale magnification, such as; <ul style="list-style-type: none"> <li>• 0°, giving a scale magnification of 1.00 (reading × 1.0)</li> <li>• 60°, giving a scale magnification of 2.00 (reading × 0.5)</li> <li>• 78°, giving a scale magnification of 5.00 (reading × 0.2)</li> </ul> </li> <li>• Scale range 0 - 260 mm water in 2 mm divisions</li> </ul> <p>Nett dimensions and weight: 640 mm wide x 160 mm front to back and 470 mm high, 6 kg including bottle of dye</p> <p>Packed dimensions: Approximately 0.1 m<sup>3</sup> and 8 kg</p>	
29.	Warranty	Minimum 3 years
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 14**  
**Technical Specifications of DRAG FORCE**

Sl. No.	Parameters with Part/Specification
1.	<p>Allows students to investigate the direct and indirect measurement of drag on various shapes</p> <ul style="list-style-type: none"> <li>• Compares drag for a cylinder calculated from a measured pressure distribution, and a wake traverse against that measured directly for a cylinder</li> <li>• Allows comparisons of drag force between a cylinder, flat plate and aerofoil</li> <li>• Toggle clamp connections to the <b>Modular Air Flow Bench</b> contraction for quick and easy fitment</li> <li>• Quick-release couplings for rapid and reliable pressure measurement connections to the Multi-Tube Manometer</li> <li>• Test duct has transparent sides with clearly printed scales – allows students to see the experiment and accurately position the models and the Pitot tube</li> </ul>
2.	<p><b>Experiments</b></p> <ul style="list-style-type: none"> <li>• Determination of the drag coefficient by measurement of the pressure distribution around the cylinder</li> <li>• Determination of the drag coefficient by wake traverse</li> <li>• Determination of the drag coefficient around the cylinder by direct measurement and comparison to results obtained by pressure distribution and wake traverse</li> <li>• Direct measurement and comparison of drag coefficient between a cylinder, flat plate and NACA0020 aerofoil</li> </ul>
3.	<p><b>Standard Features</b></p> <ul style="list-style-type: none"> <li>• Supplied with comprehensive user guide</li> <li>• Manufactured in accordance with the latest European Union directives</li> </ul>
4.	<b>Specifications</b>

	<ul style="list-style-type: none"> <li>To allow study of the drag of various bodies, pressure distribution around a cylinder and the wake of different bodies</li> <li>A balance arm attached to the side of the main unit holds the models in place inside the main unit</li> <li>Balance arm used with adjustable weights in the drag force experiments and as a fixed support in the wake traverse experiments. For the pressure distribution experiment, a protractor and cylinder model is fitted in the main body. The cylinder is connected to the separate Multi-Tube Manometer to display the pressure distribution as the cylinder is rotated</li> <li>For the wake traverse experiments, a pitot tube assembly is attached to the main unit.</li> </ul>
5.	<ul style="list-style-type: none"> <li>The apparatus is supplied with <ul style="list-style-type: none"> <li>Cylinder and protractor model for pressure distribution experiment. Pressure tapping in outside wall</li> <li>Two other models for the wake traverse and drag force experiments: <ul style="list-style-type: none"> <li>Flat plate (inverted prism)</li> <li>Symmetrical aerofoil section <ul style="list-style-type: none"> <li>Aerofoil type NACA0020 (symmetrical)</li> <li>Aerofoil Chord 63 mm</li> <li>Aerofoil wingspan 49 mm</li> <li>Effective surface area 0.0031 m<sup>2</sup></li> </ul> </li> </ul> </li> </ul> </li> </ul>
6.	Packed dimensions and weight: Approximately 0.2 m <sup>3</sup> and 10 kg
7.	Warranty   Minimum 3 years
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.	

**ITEM 15**  
**Technical Specifications of BOUNDARY LAYER**

Sl. No.	Parameters with Part/Specification
1.	<p>Allows students to investigate the phenomena of the boundary layer on a flat plate</p> <ul style="list-style-type: none"> <li>Allows a number of tests on laminar and turbulent boundary layers, with rough and smooth surfaces with different pressure gradients</li> <li>Boundary layer velocity profile is measured with a Pitot tube with a fine micrometer adjustment for best results</li> <li>Toggle clamp connections to the <b>Modular Air Flow Bench</b> contraction for quick and easy fitment</li> <li>Quick-release coupling fitted to the Pitot tube to allow rapid and reliable connection to the Multi-Tube Manometer</li> <li>Test section has a transparent front – students can see the experiment and the position of the Pitot tube clearly</li> </ul>
2.	<p><b>Experiments</b></p> <ul style="list-style-type: none"> <li>Measurement of the velocity profile in laminar and turbulent boundary layers</li> <li>Measurement of the velocity profile in the boundary layer formed over both rough and smooth plates</li> <li>Measurement of the velocity profile in the boundary layer at various distances from the leading edge of the plate</li> </ul>
3.	<p><b>Standard Features</b></p> <ul style="list-style-type: none"> <li>Supplied with comprehensive user guide</li> <li>Manufactured in accordance with the latest European Union directives</li> </ul>

4.	<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>• A flat plate with a sharpened edge facing the oncoming flow fitted in a transparent working section so that a boundary layer forms along it. One side of the plate is smooth and the other is rough so that by turning the plate over, results may be obtained on both types of surface</li> <li>• A sensitive, wedge-shaped Pitot tube mounted in a micrometer traverse allows students to measure velocity in the boundary layer. The end of the tube is flattened so that it presents a narrow slit opening to the flow. The traversing mechanism is spring loaded to prevent backlash and a micrometer reading is used to indicate the displacement of the Pitot tube <ul style="list-style-type: none"> <li>➤ 150 mm long, 1.2 mm internal diameter</li> </ul> </li> <li>• Optional wedge shaped liners can be fitted, so that experiments can be performed in; <ul style="list-style-type: none"> <li>➤ Generally accelerating free stream flow conditions</li> <li>➤ Generally decelerating free stream flow conditions</li> <li>➤ Uniform free-stream flow conditions</li> </ul> </li> <li>• Both laminar and turbulent layers may be formed</li> </ul>
5.	Packed dimensions and weight: Approximately 0.2 m <sup>3</sup> and 10 kg
6.	Warranty   Minimum 3 years
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.	

**ITEM 16**  
**Technical Specifications of JET ATTACHMENT**

Sl. No.	Parameters with Part/Specification
1.	<p>Allows students to investigate the Coandă effect and a fluidic flip-flop</p> <ul style="list-style-type: none"> <li>• Shows an example of how the phenomena of fluid mechanics can be exploited to perform a useful task – a fluidic flip-flop</li> <li>• Toggle clamp connections to the <b>Modular Air Flow Bench</b> contraction for quick and easy fitment</li> <li>• Transparent fronted test duct with clearly printed scales allows the experiment to be clearly seen and components accurately positioned</li> </ul>
2.	<p><b>Experiments</b></p> <ul style="list-style-type: none"> <li>• Demonstration of the Coandă effect</li> <li>• Demonstration of the fluidic flip-flop</li> </ul>
3.	<p><b>Standard Features</b></p> <ul style="list-style-type: none"> <li>• Supplied with comprehensive user guide</li> <li>• Manufactured in accordance with the latest European Union directives</li> </ul>
4.	<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>• Nozzle plate which houses a rectangular supply nozzle</li> <li>• Nominal dimensions of nozzle 10 mm x 100 mm</li> <li>• Adjustable aspect ratio; 10:1, 12.5:1, 20:1</li> <li>• Attachment walls, fully adjustable</li> <li>• Offset between -4 mm and 20 mm</li> <li>• Angular position 0 - 120<sup>o</sup></li> <li>• Can be sealed by flexible seal strips</li> <li>• Removable Splitter Block</li> </ul> <p style="text-align: right;">Packed dimensions and weight: Approximately 0.2 m<sup>3</sup> and 10 kg</p>
5.	

6.	Warranty	Minimum 3 years
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 17**  
**Technical Specifications of TAPPED AEROFOIL**

Sl. No.	Parameters with Part/Specification																				
1.	<p>Allows students to investigate the pressure distribution around a two-dimensional aerofoil</p> <ul style="list-style-type: none"> <li>• Provides both a visual and analytical experience for students as the manometer readings clearly show both the pattern and magnitude of the pressure distribution</li> <li>• Serves as a useful companion experiment to the Drag Force Apparatus (AF12)</li> <li>• Toggle clamp connections to the <b>Modular Air Flow Bench</b> contraction for quick and easy fitment</li> <li>• Quick-release couplings and clear printed schematic for rapid and reliable pressure measurement connections to the AF10a Manometer</li> <li>• Transparent front and rear to the test duct with a printed scale allows the experiment to be clearly seen and allows the aerofoil angle to be accurately set</li> </ul>																				
2.	<p><b>Experiments</b></p> <ul style="list-style-type: none"> <li>• The visualisation and measurement of the pressure distribution around an aerofoil section</li> <li>• Lift characteristics and stall angle of an aerofoil</li> </ul>																				
3.	<p><b>Standard Features</b></p> <ul style="list-style-type: none"> <li>• Supplied with comprehensive user guide</li> <li>• Manufactured in accordance with the latest European Union directives</li> </ul>																				
4.	<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>• Includes a NACA0020 symmetrical aerofoil mounted in a duct with transparent sides</li> <li>• The duct fits onto the contraction of the Air Flow Bench</li> <li>• The aerofoil has pressure tappings on its upper and lower surfaces, six on each surface. These tappings connect to an integral manifold, for connection to a suitable manometer <ul style="list-style-type: none"> <li>➤ Aerofoil type                   NACA0020 (symmetrical)</li> <li>➤ Aerofoil Chord                 63 mm</li> <li>➤ Aerofoil wingspan           49 mm</li> <li>➤ Effective surface area       0.0031 m<sup>2</sup></li> </ul> </li> <li>• Includes 12 Tappings; <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Tapping Number</th> <th style="text-align: left;">Position from Leading Edge (mm) (measured along curve of aerofoil)</th> </tr> </thead> <tbody> <tr><td>1</td><td>2.2</td></tr> <tr><td>2</td><td>3.9</td></tr> <tr><td>3</td><td>6.1</td></tr> <tr><td>4</td><td>8.7</td></tr> <tr><td>5</td><td>11.8</td></tr> <tr><td>6</td><td>14.8</td></tr> <tr><td>7</td><td>20.0</td></tr> <tr><td>8</td><td>25.6</td></tr> <tr><td>9</td><td>31.4</td></tr> </tbody> </table> </li> </ul>	Tapping Number	Position from Leading Edge (mm) (measured along curve of aerofoil)	1	2.2	2	3.9	3	6.1	4	8.7	5	11.8	6	14.8	7	20.0	8	25.6	9	31.4
Tapping Number	Position from Leading Edge (mm) (measured along curve of aerofoil)																				
1	2.2																				
2	3.9																				
3	6.1																				
4	8.7																				
5	11.8																				
6	14.8																				
7	20.0																				
8	25.6																				
9	31.4																				



	10	37.3
	11	43.4
	12	49.5
Packed dimensions and weight: Approximately 0.2 m3 and 10 kg		
5.		
6.	Warranty	Minimum 3 years
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 18**  
**Technical Specifications of SINE CENTRE**

Sl. No.	Parameters	Part/Specification
1.	Size	0-200 mm
2.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 19**  
**Technical Specifications of GRANITE SURFACE PLATE**

Sl. No.	Parameters	Part/Specification
1.	Size	450 x 450 x 50 mm
2.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 20**  
**Technical Specifications of AUTO COLLIMATOR WITH ANGLE DEKKOR**

Sl. No.	Parameters	Part/Specification
1.	Size	LC 1 with 180 x 250 mm
2.	Stages	Harden and ground base plate and stand with three angle gauges with precision reflector mounted on stand and optical square prism
3.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 21**  
**Technical Specifications of MONOCHROMATIC LIGHT SOURCE WITH SPECIMEN SET AND OPTICAL FLAT**

Sl.	Parameters	Part/Specification
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No.		
30.	Light source	35 watts sodium vapour lamp
31.	Ballast	Copper Ballast for longer life
32.	Unit	Steel Fabricated box with powder coating
33.	Diffuser	Milky white acrylic sheet is used to get uniform intensity
34.	Test Specimen Set for Demonstration	50mm dia Optical Flat, Concave Surface, Convex surface, Cylindrical, Tourf Formation, Steel Master
35.	Warranty	Minimum 1 year

\*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 22**  
**Technical Specifications of TOOL MAKERS MICROSCOPE**

Sl. No.	Parameters	Part/Specification
1.	Magnification	30X
2.	X-Y Table	150 X 150 mm
3.	Travel	50 mm X 50 mm
4.	Micrometer	0.25 mm L.C. 0.01 mm
5.	Light Source	Diascopic and Epdiaspic 360 ' Graduated ring with 6 minutes vernier
6.	Filter	Green
7.	View Field	6 mm
8.	Image	Erect
9.	Electronic regulator	Controls light intensity
10.	Warranty	Minimum 1 year

\*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 23**  
**Technical Specifications of PNEUMATIC COMPARATOR**

Sl. No.	Parameters	Part/Specification
1.	Dial Type	C-Jet Air Gauge Unit
2.	Range	± 0.040 L.C. 0.001 mm. Along with Oil and Moisture Removal Filter Set and Accessories
3.	2 Jet Air Gauge to Check ID	1 No.- Any Size
4.	Setting Rings for the above	2 Nos.
5.	2 Jet Air Ring Gauge to check OD	1No.- Any Size
6.	D/E Setting Plug for above	1 No.
7.	Component for Pneumatic Comparator	10 Nos
8.	Warranty	Minimum 1 year

\*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 24**  
**Technical Specifications of PROFILE PROJECTOR**

Sl. No.	Parameters	Part/Specification
1.	Screen	Glass screen Ø 300mm with crosslines
2.	Magnification	10x
3.	Workstage	Size of Top Plate – 140 mm X 135 mm
		Measuring Traverse - X: 25 mm, Y: 25mm
		Working Area - Ø 60 mm
		Load Capacity - 5 Kgs
		Max Dia - 60mm
		Micrometer – 0 to 25 mm LC – 0.01 mm for X & Y axes.
4.	Filter	Green
5.	Measuring Systems	Linear 0-25 mm with L. C. 0.01 mm
		Angular 360° Graduated rotary screen
6.	Illumination Systems	Tungsten Halogen lamps
7.	Profile	12V 50W
8.	Surface Illumination	12V 50W - 2 Nos
9.	Power Supply	220V, 50Hz, 10A
10.	Dim (LxWxH)	630 x 430 x 945 mm
11.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 25**  
**Technical Specifications of STEEL GAUGE BLOCK**

Sl. No.	Parameters	Part/Specification	
1.	Size Set Size pieces	88	
2.	Nominal Value in mm	Steps mm	No. of pieces
3.	1.0005	-	1
4.	1.001 to 1.009	0.001	9
5.	1.01 to 1.49	0.01	49
6.	0.5 to 9.5	0.50	19
7.	10 to 100	10	10
8.	Warranty	Minimum 1 year	
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.			

**ITEM 26**  
**Technical Specifications of SINGLE PHASE 5KVA ISOLATION TRANSFORMER**

Sl. No.	Parameters	Part/Specification
36.	Capacity	5KVA Load current –22Amp.
37.	Transformer	Copper wound Heavy duty

38.	Input	230Volts, 1 phase , 50Hz
39.	Output	230Volts, 50Hz
40.	Ratio	1:1
41.	Frequency	50±3Hz
42.	Load Regulation	3.5%
43.	Common Mode Noise rejection	Over 120dB
44.	Coupling Capacitance	Less than 0.005PF
45.	Metering	1 no. Analog volt meter (0-300volt 72Sq.)to monitor Input and output volts
46.	Indication	1 no. of Lamp Indications Mains
47.	Housing	Floor mounting type Heavy duty steel sheet enclosure appropriate primer and finish paint by powder coat
48.	Warranty	Minimum 1 year

\*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 27**  
**Technical Specifications of THREE-PHASE 10KVA ISOLATION TRANSFORMER**

Sl. No.	Parameters	Part/Specification
1.	Capacity	10KVA, Load current-14Amp./Phase
2.	Transformer	Copper wound Heavy duty
3.	Input	415Volts,A.C 3phase ,50Hz.±10%
4.	Output	415Volts, 50Hz
5.	Ratio	1:1 (415V:415V)
6.	Frequency	50±3Hz
7.	Load Regulation	>3%
8.	Insulation Class	F for Transformer winding
9.	Insulation Resistance	100 Meg. Ohms all winding
10.	H.V. Test	3KV. All winding for 1 minute
11.	Connection	-Pri -Star, Sec- Star with Neutral
12.	Common Mode Noise rejection	Over 120dB
13.	Coupling Capacitance	Less than 0.005PF
14.	Metering	1 no. Analog volt meter (0-300volt 72Sq.)to monitor Input and output volts with selector switch.
15.	Indication	1 no. of Lamp Indications Mains
16.	Housing	Floor mounting type Heavy duty steel sheet enclosure appropriate primer and finish paint by powder coat
17.	Warranty	Minimum 1 year

\*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.

**ITEM 28**  
**Technical Specifications of THREE PHASE 10 KVA ON-LINE UPS**

Sl.	Parameters	Part/Specification
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No.		
1.	Capacity	10KVA Load current –14Amp./Phase
2.	Transformer	Copper wound Heavy duty
3.	Input	220-440 Volts, 3 phase, 50Hz
4.	Input THD	< 5%
5.	Output	230 Volts, 1 phase, 50Hz
6.	Frequency	50±3Hz
7.	Input Power Factor	0.99 to unity
8.	Voltage Regulation	±1%
9.	Output Waveform	Pure Sine Wave
10.	Crest Factor	3:1
11.	Output Power Factor	0.90
12.	Harmonic Distortion (THD)	< 3% (linear load) < 5% (non-linear load)
13.	Battery	The battery should be a reputed brand having ISO9001:2008 & ISO 14001 : 2004 Certified for quality & environment. In addition the battery should have any three of the following certifications: JIS/QS 9000-8230/UL 198E BS OHSAS-18001: 2007/CE mark
	Approved Make	Panasonic/Quanta/Exide (12 V VRLA Sealed Maintenance Free Batteries)
14.	Back-Up Time	One Hour
15.	Battery Rack and Accessories	One Set
16.	Noise Level	<45 dB @1 meter
17.	Warranty	Minimum 1 year
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

**ITEM 29**  
**Technical Specifications of DESKTOP COMPUTER**

Sl. No.	Parameters	Part/Specification
1.	Processor	Intel® Core™ i7-7700K Processor@ 4.50 GHz or above 8 MB Smart Cache/Quad Cores/8 Threads or above
2.	Chipset	Chipset compatible with the processor
3.	Memory	1x8 GB DDR4 RAM expandable to 64GB or above. Four DIMM slots
4.	Hard Disk Drive	1 TB HDD @7200 RPM or above
5.	Graphics	Integrated HD Graphics
6.	Audio	High Definition integrated Audio with internal Speaker in the CPU
7.	Ethernet	Integrated Gigabit (10/100/1000 NIC) LAN
8.	Slots	1x PCI, 1x PCIe16, 2xPCIex1
9.	Bays	2x 3.5" Internal drive bays, 1 ODD bay
10.	Ports	4 USB 2.0 ports, 4 USB 3.0 Ports
		1 VGA Port, 2 Display Port, 1 DVI Port
		1 RJ -45 network connector
		1 RS- 232 Serial Port
		3.5mm audio in/out jacks

		PS/2 Keyboard and mouse port (Optional)
		6 SATA 3 (6 GB/s) or above
11.	Form Factor	MT (Mini Tower)
12.	Power Supply	Min 450W
13.	Keyboard	USB 104 Keys Keyboard (same make as PC)
14.	Mouse	USB 2 Button Scroll Mouse (Same make as PC)
15.	O.S.	Genuine Microsoft Windows 10 Pro 64-bit Preloaded with recovery Media
16.	Diagnostics	BIOS Diagnostics
17.	Compliance & Certification	Energy Star version 6.1 or higher
		MET, FCC, LINUX, Windows, EPEAT Gold
18.	System Volume	Chassis Volume 24L or more
19.	Display	21.5H 16:9 5ms 100000000:1 Max(ACM) 250nits LED 1xVGA TCO6.0
20.	ODD	Internal 5.25" DVD-RW Drive
21.	WiFi	Integrated(preferable)/PCI with Antenna based supporting 802.11n/b/g
22.	Antivirus	Quick Heal Total Security Latest for 3 Years
23.	Warranty	3 Years Annual Comprehensive Warranty from the date of Installation and commission
*Additional optional accessories should be indicated separately along with their price. The above specifications are desirable and the actual numbers achievable for your system should be indicated.		

### **General Terms and Conditions**

GENERAL TERMS & CONDITIONS OF CONTRACT FOR SUPPLY, INSTALLATION AND DEMONSTRATION OF THE INSTRUMENTS, EQUIPMENT, MACHINERIES REQUIRED FOR DEPARTMENT OF MECHANICAL ENGINEERING, VSSUT BURLA, ODISHA.

#### **1. Document Establishing Bidder's Eligibility and Qualification**

The Bidders shall furnish as part of the Bid the following Documents establishing Bidder's eligibility and qualification to the Purchaser's satisfaction.

1.1 Manufacturer / Authorized Distributor / Dealer having valid license / certificates for the quoted item and the direct Importers holding valid Import License Manufacturer / Authorized Distributor / Dealer of the product are eligible to participate in the Bid.

1.2 Bidders should have **ISI or equivalent** certification for quoted instruments and equipment. However, the Purchaser shall have the right to consider the items where ISI or equivalent certification is not applicable.

1.3 If the Bidder whether manufacturer/distributor/dealer, have experience of supply and installation of the quoted items in reputed Government Institutions/Public Undertakings/reputed Private Institutions within India during last preceding 5 (Five) years reckoned from the date of bid opening and the details must be submitted along with documentary proof.

1.4 The Bidders shall have to produce document in support of their service associates **nearest to Bhubaneswar/ Sambalpur**, Odisha.

1.5 Bidder shall have to provide operational Training for **Machineries** to one Official of each consignee at Suppliers Plant or Consignee site **at least for 7 days whichever is suitable to Purchaser**.

1.6 The Bidder shall quote items of one reputed Brand/model with all accessories in complete to perform functionality of Equipment/Machinery.

1.7 Manufacturer shall to submit copy of Industry Registration of quoted products and Tax Registration Certificate issued from Competent authority. In case of Authorized Distributor/Dealer/Suppliers have to submit Manufacture authorization along with copy of above documents of Manufacture Industry.

## **2. Document Establishing Goods Eligibility**

The instruments and equipment offered against the schedule of requirement of instruments, equipment and Machineries should be in accordance with the stipulated specifications and of one reputed brand/model (**NB: Variation in specification is allowed upto  $\pm 5\%$  in case of Machineries/Equipments**)

2.1 The documentary evidence establishing the brand and the model may be in the form of literature, pamphlets, manuals, drawing, circuit diagram etc.

2.2 Detailed description of instruments and equipment with essential technical and performance characteristics may also be furnished.

## **3. Technical Bid (COVER - A)**

The following document should be submitted in cover-A.

3.1 Earnest Money Deposit

3.2 Technical details of the equipment and machineries as per **Annexure-V**.

3.3 Copy of the manufacturing license/ import license/ Authorized Distributor/ Dealer certificates

3.4 Copy of the authorization from the Manufacturing Company in case of Authorized Distributor /Dealer.in **Annexure-III** along with Manufacturer Industry Registration and Tax Registration Certificate.

3.5 VAT/GST clearance certificate up to **date** which is/are applicable.

- 3.6 Performance/ Market standing certificate establishing that the Bidders have executed supply of similar items as mentioned in Schedule of Requirement of instruments and equipment to different Govt. Organizations/ Government PSUs / reputed Private Institutions. (proof of documents)
- 3.7 Copy of the IT PAN Card.
- 3.8 Detail name, address, telephone no. fax, e-mail of the firm and of the Director/ Managing Director/ Proprietor of the firm (As per **Annexure IV**)
- 3.9 Address, Telephone No., e-mail, Fax of the Branch Office/ Contact Person/ Liaisoning Office in Odisha. (As per **Annexure IV**)
- 3.10 Power of Attorney/ Authorization to a person for liaisoning and monitoring the business on behalf of the manufacturer / bidder but not entitled to raise the bills.
- 3.11 Document if any to establish the recognition of the manufacturing unit in respect of ISO or equivalent.
- 3.12 **The original bid document signed & sealed by authorized person in each page as a token of acceptance of all terms and conditions of the tender with original receipt.**
- 3.13 Documentary evidence establishing that the instruments & equipment and ancillary services to be supplied by the Bidders shall confirm to the Bidding Document
- 3.14 Bidders are required to submit Para-wise compliance to each parameter of specification.
- 3.15 Any deviation in the specification of the item including standard accessories / optional accessories in complete for functionality of Machine should be marked in **bold letters. ( NB: Variation in specification is allowed upto  $\pm 5\%$  in case of Machineries/Equipments)**
- 3.16 Details of foundation drawing for instruments and equipment, if any, should be provided.
- 3.17 The details of the service station / service associates nearest to Bhubaneswar/Sambalpur shall be submitted.
- 3.18 Willingness to provide operational Training for Machineries to one Official of each consignee at Suppliers Plant or Consignee site **at least for 7 days whichever is suitable to Purchaser.**
4. **Price Bid (COVER – B)**



- 4.1 The hard copy of price bid giving the rates for various instruments & equipment and other items should be submitted along with sealed soft copy of **price bid in Excel format through CD/Pen drive** both in separate sealed cover here in after called **Cover B (Price Bid)**. **Price Bid (Cover-B)** of the bidders who qualify in **Technical Bid (Cover-A)** will only be opened and will be communicated through **E-mail/Fax**.
- 4.2 The price of the each item shall be quoted as per the prescribed Price Schedule Format at **Annexure-I** along with price break up of custom duty, GST, Packing, Forwarding and Handling charges, Insurance charges, ET, Freight up to destination including unloading, commissioning including testing and training with total price per item at **FOR** destination. The bidders are required to submit the individual price of each instrument(s) and equipment(s) as indicated in the schedule of requirements.
- 4.3 Each quoted item and all accessories should cover the warranty / guarantee for minimum **1 (one)** year from the date of commissioning (**Annexure-II**).
- 4.4 The **Cover B** of the technically qualifying bidders will be opened at the Office of the “**The Registrar, Veer Surendra Sai University of Technology, Burla**” on the date and time to be communicated to them after technical evaluation of **Cover A by E-mail/Fax**.
- 4.5 The cost of standard accessories shall be included in basic price and optional accessories shall have to be quoted separately.
- 4.6 The bidders are required to submit the list of the spare parts required for the machine as well as the list of the dealers/ Distributors of the spare parts nearest to Bhubaneswar, Odisha for its availability.

## **5 BID CONDITIONS**

- 5.1 A copy of the original bid conditions and the schedules should be signed by the bidder at the bottom of each page with the office seal duly affixed and returned along with the bid. Bid schedule should be duly filled in with an **index** and **page number** for the documents, enclosures & EMD etc. **Paging** must be done for all the documents submitted.
- 5.2 Bids should be type written or Computerized and every correction/ over writing in the bid should invariably be attested with signature of the bidder with date before submission of the bids to the authorities concerned. No revision of price upward or downward will be allowed once the bid is opened. However the purchaser shall have the right for considering the exchange rate of foreign currencies on verification of documents.

### **5.3 Language of Bid**

The Bid prepared by the bidders and all correspondence and document relating to the bid exchanged by the Bidders and the **Purchaser**, shall be written in the English language. Supporting document and printed literature furnished by the Bidders may be written in another language provided they are accompanied by an accurate translation of the relevant passages in the English language in which case, for purposes of interpretation of the Bid, the English translation shall govern.

#### 5.4 Bid Price

- The contract shall be for the full quantity as described above. Corrections, if any, shall be made by crossing out, initialing, dating and re-writing.
- All duties, taxes, and other levies payable on the raw materials and components, job contract shall be included in the total price.
- GST/VAT in connection with the sale shall be shown separately.
- The rates quoted by the bidders shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- The price shall be quoted in Indian Rupees only.

#### 5.5 GST clearance

Copies of valid GST clearance Certificates shall be furnished by the Bidders and the originals of the above certificates shall be produced to the purchaser before placement of notification of award if asked for by the Purchaser.

#### 5.6 EMD

All bidders are required to submit EMD **not less than 2% of the quoted amount** in shape of **Demand draft** drawn in favour of **“The Registrar, Veer Surendra Sai University of Technology, Burla” payable at SBI, Burla** only. The EMD shall be in Indian Rupees.

**NOTE:** Non-submission of EMD or submission of less EMD than the desired one shall result in rejection of Bid. The EMD deposited against other Bids cannot be adjusted or considered for this Bid. No interest is payable on EMD.

#### 5.7 SUBMISSION OF BIDS

##### **Sealing and Marking of Bids**

Bid should be submitted in two Bid system containing two parts as detailed below.

##### **Sealed Cover-A: Technical Bid.**

##### **Sealed Cover-B: Price Bid (hardcopy and sealed soft copy in CD/pen drive)**

Both the sealed envelopes should then be put in one outer cover and each cover should have the following indication:

- i) Reference No of Bid \_\_\_\_\_
- ii) Bid regarding \_\_\_\_\_
- iii) Due date & time for submission of the Bid \_\_\_\_\_
- iv) Due date & time for opening of the Bid \_\_\_\_\_
- v) Name of the Firm \_\_\_\_\_

**NOTE:**

**A. Bids submitted without following two Bid system procedures as mentioned above will be summarily rejected.**

**B.** Please Note that **prices should not be indicated in the Technical Bid**. The Prequalification document including EMD as required in the Bid document should invariable be accompanied with the Technical Bid (**Cover A**).

The outer envelope shall indicate the name and address of the bidders to enable the bid to be returned unopened in case it is declared “late”. If the cover containing the outer envelope is not sealed and marked as required, **Purchaser** will assume no responsibility for the bid’s misplacement or premature opening.

The above procedure shall be adopted both for the Technical bid and price bid separately. Telex, cable, email or facsimile bids will be rejected.

**5.8 Deadline for Submission of Bids**

Bids must be received by the **Purchaser** at the address specified not later than the time and date specified in the Invitation of Bids. In the event of the specified date for the submission of bids being declared a holiday for the **Purchaser**, the bids will be received up to the appointed time on the next working day.

The **Purchaser** may, at its discretion, extend this deadline for submission of bids by amending the bid document, in which case all previous rights and obligations of the purchasers and bidders will remain same till the extended date.

**5.9 Modification and Withdrawal of Bids**

No Modification and Withdrawal of Bids is allowed between the interval of time of submission and the last date and time of the bids.

No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidders on the bid form.

**5.10 BID OPENING**

5.11 The **Purchaser** will open all bids, in the presence of bidder's representatives who choose to attend at **12 PM of 19<sup>th</sup> October 2017** at the Office of the "**The Registrar, Veer Surendra Sai University of Technology, Burla**".

5.12 The bidder's representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of bid opening being declared a holiday for the **Purchaser**, the bids shall be opened at the appointed time and location on the next working day.

5.13 The bidder's names, and the presence or absence of the requisite EMD and such other details as the **Purchaser**, at its discretion, may consider appropriate will be announced at the opening. No bid shall be rejected at bid opening, except for late bids, which shall be returned unopened to the bidders, on demand.

#### 5.14 **Acceptance of the Bid**

- Bidders submitting bids would be considered who have considered and accepted all terms and conditions. No enquiries, verbal or written, shall be entertained in respect of acceptance or rejection of the bid.
- Genuine equipment and instrument etc. should be supplied. Bidders should indicate the source of supply i.e. name and address of the manufacturers from whom the items are to be sourced.
  - Supply of equipment means – Installation and Commissioning (except civil works), Demonstration as well as Training at site. **No separate charges will be paid on this account.**

#### 5.15 **Rejection of the Bid**

The Bid document shall be out-rightly rejected under following stipulation and no correspondence will be entertained whatsoever.

- If the Bidders has not furnished the required **Tender paper cost** and **EMD** or EMD exemption certificate from competent authority.
- If the Bidders has not submitted the Price as per the prescribed format **Annexure-I**
- **Manufacturing Authorization Annexure-III and in case of Authorized Distributor / Dealer/Suppliers have to submit Manufacture authorization along with copy of above documents of Manufacture Industry.**
- If the bid is not supplemented with breakup of standard accessories / Optional accessories & cost of AMC separately for three years after completion of warranty period **(In case of major machinery only).**

- Photo copy of the up-to-date valid manufacturing license/ import license (if it is imported) /dealership certificate/Distributor certificate of the product along with Tax registration Certificate of Manufacturer issued from competent authority.
- If the bidders, whether manufacturer or authorized distributor/ dealer have not supplied the required quantity for qualification as per the eligibility criteria and not submitted the performance statement at **Annexure-IV with supporting documents.**
- If the quoted product of the bidders not confirms to technical specification with complete accessories for functional Equipment/Machinery and standard of workmanship required by the Purchaser.
- If the bidder has not furnished technical details of the equipments and machinery with **one make and model** as per **Annexure-V.**
- **If bidder will quote items of more than one make/model.**
- If the bidder has not furnished detailed mandatory drawings, **catalogue/**, Foundation drawings & schedule of supply of items, if required.
- If the bidders have not agreed to give **bid validity.**
- If Bidder is not willing to provide operational Training for Machineries to one Official of each consignee at Suppliers Plant or Consignee site **at least for 7 days in case of major machineries whichever is suitable to Purchaser.**

#### 5.16 Purchaser's Right to Accept any Bid and to Reject any Bid

The Purchaser reserves the right to accept or reject any bid and to annul the bidding process and reject all the bids without assigning any reason thereof at any time prior to award of Contract, without thereby incurring any liability to the affected Bidders or Bidders on the grounds of such action of the purchaser. In case no bidder qualifies as per qualifying criteria and standards, purchaser may at his discretion relax qualification criteria for award of contract.

#### 5.17 Evaluation and Comparison of Bids

The comparison shall be of FOR destination price basis including the price of all costs (**excluding GST**) paid or payable on Machineries, instruments and equipment incorporated or to be incorporated in the items including the warrantee/guarantee period from the date of installation.

- The Purchaser's evaluation of a bid will take into account, in addition to the bid price and the price of incidental services.

- The purpose of bid evaluation is to determine substantially responsive bid with the lowest evaluated cost, but not necessarily the lowest submitted price, which should be recommended for award.
- Evaluation of bids should be made strictly in terms of the provisions in the bid document to ensure compliance with the commercial and technical aspects.
- The past performance of the suppliers will be taken into account while evaluating the bids.
- Cost of the inland transportation, insurance and other costs within the Purchaser's Country incidental to delivery of the goods to their final destination;
- Delivery schedule offered in the bid;
- Deviations in payment schedule from that specified in the General Terms & Conditions of Contract;
- The availability in the Purchaser's country of spare parts and after-sales services for the goods offered in the bid;
- The projected operating and maintenance costs during the life of the equipment/ goods.
- The performance and productivity of the equipment/ goods offered;
- The quality and adaptability of the equipment/ goods offered.
- Any other point as deemed proper to be incorporated by the evaluation committee.
- **Alternative options of offer shall not be allowed.**
- Each Bidder shall submit only one quotation with one make & model.
- The quotation would be evaluated separately for each item
- Negotiation may be made with the lowest evaluated bidder.
- Lowest evaluated price shall be taken in to consideration, but not the lowest quoted price.
- Willingness to provide operational Training to one Official of each consignee at consignee site for at least **7 days whichever is suitable to Purchaser.**

## **6.0 Supply Conditions**

### **6.1 Delivery of Goods**

The delivery of goods shall be made by the supplier to the Consignee in accordance to the order placed as shall be detailed in the Schedule of requirements & technical specifications.

### **6.2 Instruments, Equipment and Machinerics Demonstration cum Inspection**

Purchaser reserves the right to ask for demonstration cum inspection of the instruments & equipment where ever applicable.

### **6.3 Inspection/ Test/Training**

The supplier shall get each equipment inspected in manufacturer's works and submit a test certificate (New & Un used) and also guarantee/warranty certificate that the equipment confirms to laid down specifications.

The supplier shall invite the purchaser for pre-dispatch inspection. The Purchaser or his representative shall have the right to inspect/ examine/ test the goods in conformity with the contract awarded/supply order during the production or before dispatch from the manufacturer's premises. Such inspection and clearance will not prejudice the right of the consignee to inspect and test the equipment on receipt at destination.

The inspection/examination/ test may be conducted in the premises of the Supplier or at the goods final destination or at the premises of the consignee, as will be decided by the Purchaser.

The purchaser's right to inspect/ examine/test & where necessary to reject the instruments & equipment after the arrival of the goods at the final destination, shall in no way be limited or waived by the reason of the goods having been inspected and tested by the manufacturer previously. In case of rejection of the goods at the final destination after inspection and test as stipulated above and in case any inspected/ tested goods fail to confirm to the specification/ working condition, the purchaser may reject them and the supplier shall replace/ repair the same free of cost.

#### **6.4 Warrantee Period (comprehensive)**

The Bidders must quote for a minimum period of **1 (One) year** of comprehensive **warranty** from the date of completion of the satisfactory commissioning as per (**Annexure-II**). This also includes all accessories related to instruments & equipment quoted for.

#### **6.5 Up time Warrantee**

The Bidders should provide uptime guarantee of 95%.

#### **6.6 Downtime Penalty Clause**

During the warranty period, desired uptime of 95% of 365 days (24 hours) if downtime exceeds 5%, penalty in the form of extended warranty, double the number of days or more will be applied for which the equipment goes out of service.

In no case the machineries should remain in non-working condition for more than 30 days beyond which a penalty of 0.2% of machine cost will be charged per day.

The principals or their agents are required to submit a certificate that they have satisfactory service arrangements and fully trained staff available to support the uptime guarantee.

## 6.7 Payment Terms

No advance payment will be made by the Purchaser to the supplier for performance of the contract. 100% of the contract price shall be paid within **30 (thirty) days** after satisfactory supply, installation, demonstration, Commissioning & training and stock entry of bills of the goods within due date of delivery.

## 6.8 Transportation

The Supplier shall be required to meet all transport and storage expenses until commissioning of the instrument(s) / equipment covered in the contract.

## 6.9 Taxes and Duties

The Supplier shall be entirely responsible for payment of all Taxes, Duties etc. incurred until delivery of the contract goods to the Consignee subject to recovery afterwards in the bill as claimed in the Bid offer.

GST as applicable is payable, to the suppliers of the State of Odisha if claimed in the Bid offer.

GST will be paid to the Suppliers of the outside State other than Odisha, if claimed in the Bid offer. Any revision of GST shall automatically be taken into account.

## 6.10 Incidental Services

The Supplier shall be required to provide any or all of the following services: (The cost should be included in the quoted Price)

- Furnishing of detailed literature/pamphlets/ circuit diagram/ operation & maintenance manual / drawings (as applicable) for each appropriate unit of supplied goods.
- Furnishing of tools required for assembly and / or maintenance of the supplied goods.
- Performance or supervision of on-site assembly and the supplied goods.
- Performance or supervision or maintenance and/ or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty/ guarantee obligations under the contract.
- **Training of the Purchaser's personnel at the Supplier's plant and / or on site, in assembly, start up, operation, maintenance and/ or repair of the supplied goods is Mandatory** .A maintenance contract for the goods supplied, if required by the user beyond the warranty period shall be on mutually agreed upon terms between the user and supplier. The cost of such maintenance contract shall not be included in the Bid cost.

## 6.11 Period of Validity of Bids



- The bid rates should be kept open/ valid for a period of **365** days from the date the Bids are opened.
- A bid valid for a shorter period i.e less than **365** days shall be rejected, as nonresponsive.
- In absence of any indication of the date of validity in the bid, it will be presumed that the offer will remain valid for the minimum period i.e. **365** days as prescribed above.
- In exceptional circumstances the purchaser may solicit the bidders consent for extension of the period of validity. If agreed upon, the bid security so deposited shall also be suitably extended.

#### 6.12 Commissioning Period

Maximum commissioning period is **30 days** from the date of supply OR **120 days from the date of issue of Purchase Order** failing which the purchaser will have the right to impose penalty for the delay period @ **0.5% per week of the contract value of item/items excluding taxes from the bill amount subject to maximum of 10%**. However Registrar has right to extend the delivery period/commissioning period in special cases.

#### 6.13 Penalty against Non Supply

In case of non supply of Stores within the due date i.e. within the date of delivery “**The Registrar, Veer Surendra Sai University of Technology, Burla**” will have the right to impose penalty, as deemed fit, to resort to risk purchase in full or part thereof at his/her discretion, his/her decision shall be final and binding for the defaulted party.

#### 6.14 Rejected items

No payment shall be made for rejected supplied items. Rejected items must be removed by the bidders within two weeks of the date of rejection at their own cost and replace immediately. In case these are not removed these will be auctioned by the purchaser (at the risk and responsibility of the suppliers) without any further notice.

#### 6.15 Annual Maintenance Contract

The Cost of Annual maintenance contract for next 3 years after warranty period shall be submitted as per the **Annexure at I (b)**. The after sales service during and after the warranty / guarantee period should be available from companies own engineers.

#### 6.16 Jurisdiction of the Court

The Purchaser and the Supplier shall agree that the competent Court at Sambalpur shall have the jurisdiction to try and decide anything between the parties and they may approach the Competent Court at Sambalpur if required at any time.

**ANNEXURE-I (a)**

**PRICE SCHEDULE (ITEM WISE) PRICE SCHEDULE (ITEM WISE)**

Item Serial No	Item Description	Country of origin with make & model	Quantity & Unit	Exware House/ Ex-showroom/ Off-the-shelf (a)	GST (b)	Packin g & Forwarding (c)	Inland transportation, insurance and other local csts incidental to delivery (d)	Any other cost (e)	Unit price (a+b+c+d+e)

**ANNEXURE-I (b)**

**PRICE SCHEDULE (ITEM WISE) - B  
PRICE SCHEDULE FOR ANNUAL MAINTANCE CONTRACT AFTER COMPLETION OF WARRANTY PERIOD.**

Sl. No.	Brief description of Goods Total annual	Quantity in nos.	1 <sup>st</sup> yr.	2 <sup>nd</sup> yr.	3 <sup>rd</sup> yr.	Annual Maintenance Contract cost 3 years i.e. 3x (a+b+c)	Remarks
			(a)	(b)	(c)		

\*\* After Completion of warranty period

**Note:**

1. In case of discrepancy between unit price and total prices, THE UNIT PRICE shall prevail.
2. The cost of Annual Maintenance Contract ( AMC) which includes preventive maintenance including testing & calibration as per technical/ service/ operational manual, labour and spares, after satisfactory completion of warranty period may be quoted for next 3 years on yearly basis for complete equipment and turnkey (if any).
3. The cost of AMC may be quoted along with taxes applicable on the date of bid opening. The taxes to be paid extra, to be specifically stated. In absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.

4. Cost of AMC will not be added for Ranking/Evaluation purpose. However, the cost of AMC for lowest evaluated bidder is subject to negotiation.
5. The payment of AMC will be made as per payment terms of the bid document.
6. The uptime warranty and down time penalty shall be as per the bid document.
7. All software update should be provided free of cost during AMC period.
8. The stipulations in Technical Specification will supersede above provisions.
9. The supplier shall keep sufficient stock of spares require during Annual comprehensive Maintenance Contract period. In case the spares are required to be imported, it would be the responsibility of the supplier to import and get them custom cleared and pay all necessary duties.

Place:

Date:

Signature of Bidder  
Business Address  
Seal of the Bidder

### **ANNEXURE - II**

#### **WARRANTY MAINTENANCE CONTRACT AGREEMENT.**

THIS AGREEMENT made the.....day of ....., 20\_\_\_ between the “**The Registrar, Veer Surendra Sai University of Technology, Burla**” (hereinafter "the Purchaser") of the one part and M/s..... (here in after called "the Supplier") of the other part:

WHEREAS the Purchaser invited bids for certain Goods & ancillary services viz, supply and commissioning of the instruments & equipment at Bhubaneswar including Comprehensive Warranty Maintenance Services and has accepted a bid by the Supplier for the instruments & equipment specified below at the Consignee site including Comprehensive Warranty maintenance Services for a period of 2 (Two) year from the date of installation & commissioning of the instruments & equipment as per award of Contract No..... dated

#### **Name of the Equipment and machineries Qty**

(To be filled in as per details of goods in the award of Contract)

#### **NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:**

1. Maintenance Services shall consist of Preventive and Corrective maintenance of equipment specified above & will include repair and replacement of parts free of cost.
2. Preventive maintenance, monthly once, which includes:
  - Check-up to ensure that device connection is proper, cabling is at proper condition etc.
  - Cleaning of the above instruments & equipments and checking the System Performance.
3. The Supplier is to furnish the tentative schedule of the preventive maintenance of Warranty Maintenance Contract (WMC) to be carried out.
4. The parts replaced must be new parts or equivalent in performance to new parts.

5. The Supplier will also provide the same maintenance service in case of the movement of equipment from the place of original installation to a different place or location, if the equipment is shifted by the Purchaser to another place or location at the cost and risk of the purchaser.
6. Any complaint informed through telephone must be acknowledged with a Complaint No. by the Supplier which will be noted by Consignee. All further contact with the Supplier on such complaint will be initiated through that Complaint No. Once rectification done, that No. will be cancelled by both parties. A register is to be maintained by the Supplier where complaints are to be noted along with Complaint No.
7. The maintenance shall normally be done at the earliest.
8. The Service Engineer of the Supplier will be allowed to handle the respective plant & machineries only in presence of the officer in charge at the Consignee site.
9. The Supplier should ensure that maintenance job is not hampered/delayed due to paucity of spares/inadequate manpower etc.
10. The Supplier should submit the services call report, to the Consignee for each and every service call without fail.
11. The Supplier evaluation data format for the WMC of Consignee systems may be filled up for necessary action.
12. All formats after filled up should be signed at the end of each page by the Supplier.
13. After completion of the work/repair/maintenance, the Purchaser shall issue a certificate of completion to the supplier to that effect.

Signature

Signature

For the Purchaser

For the Supplier

Name:

Name:

Designation:

Designation:

Address:

Address:

Telephone No:

Telephone No:

**ANNEXURE-III**

**MANUFACTURES' AUTHORISATION FORM**

No. \_\_\_\_\_ / Date \_\_\_\_\_ /

To

The Registrar,  
VSSUT Odisha  
Burla, Sambalpur.

Dear Sir, Bid No. \_\_\_\_\_

We \_\_\_\_\_ who are established and reputable manufacturers of \_\_\_\_\_ having factories at \_\_\_\_\_ (Address of Factory) do hereby authorize M/s. \_\_\_\_\_ (Name and address of Agent) to submit a bid and sign the contract with you against the above bid.

\* No company or firm or individual other than M/s. \_\_\_\_\_ are authorized to bid and conclude the contract in regard to this business against this specific invitation for bid.

We hereby extend our full guaranty and warranty as per general conditions of contract for the goods and services offered by the above firm against this bid.

Yours faithfully,  
(Signature for and on behalf of Manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a person, competent and having the power of attorney to bind the manufacturer. It should be included original by the Bidders in its bid.

- This para should be deleted for simple items where manufacturers sell the product through different stockiest.
- The Supplier/Managing Director of the Company (if the supplier is a Company) or the Power of Attorney Holder having specific power to sign the contract can only sign the contract/execute the agreement.

#### **ANNEXURE-IV**

#### **Details of the bidders**

Bid Reference No.

Name and address of the Bidder:

1. Name of the bidder
  - a) Full postal address
  - b) Full address of the premises
  - c) Telegraphic address
  - d) Telephone number
  - e) Fax number
  - f) E mail:
  - g) PAN No
  - h) TIN No
2. Total annual turn-over (value in Rupees)
3. Quality control arrangement details
4. Test certificate held
  - a) Type test
  - b) BIS/ISO certification
  - c) Any other
5. Details of staff
  - a) Technical
  - b) Skilled
  - c) Unskilled

- 6. Branch Office/ Contact Person/ Liaisoning Office in Odisha.
  - a) Address
  - b) Telephone No.
  - c) e-mail,
  - d) Fax

Signature and seal of the Bidder

**ANNEXURE-V**

**Technical details of the Machineries & Equipments to be supplied by the bidder**

Bid Sl. No. of the item	Tender specification	Bidders Specification with make and model no (Enclose manufactures catalogue / brochure for each item)	Deviation if any With university specification

Signature and seal of the Bidder

**VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA, ODISHA-768018**

No. VSSUT/MECH/3148/2017

Dated:18.09.2017

**TENDER CALL NOTICE**

Sealed tenders are hereby invited from reputed and experience firms for supply, installation and maintenance of the various equipment of **Department of Mechanical Engineering**, VSSUT Burla, in the District of Sambalpur, Odisha. The interested firms/agencies/suppliers/dealers/SSI Units can log on to the University Website [www.vssut.ac.in](http://www.vssut.ac.in) for verification of the other terms and conditions in details.

Sd/-

REGISTRAR

**No. VSSUT/MECH/3149(4)/2017**

**Date: 18.09.2017**

**Copy to:**

1. M/s Display Lines, 219, Saheed Nagar, Bhubaneswar-751007 with request to publish the above advertisement in one issue of All India Edition of "Indian Express" at the I & PR approved/lowest rate. The bill may be sent in triplicate along with a copy of the paper in which the publication is made.
2. University Notice Board of VSSUT Burla.
3. Dean F & P, with a request to upload the notice and documents in the University website ([www.vssut.ac.in](http://www.vssut.ac.in)).
4. SO Accounts for information and necessary action.

  
**REGISTRAR**  
**REGISTRAR**  
**V.S.S. University of Technology**  
**Burla, Sambalpur, Odisha-768018**