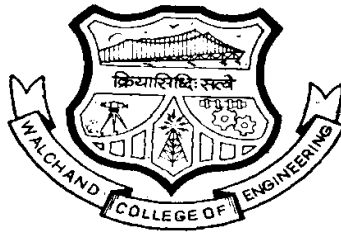


**COST OF TENDER FORM: Rs.1000/-**

**WALCHAND COLLEGE OF ENGINEERING,  
SANGLI  
(An Autonomous Institute)**

## **TENDER DOCUMENT**



**LAST DATE OF RECEIVING  
26<sup>th</sup> February, 2014 up to 6:00 pm**

### **DATE OF OPENING THE TENDER**

**28<sup>TH</sup> February, 2014 at 3.30 pm**

**In Conference Hall, Main Building**

**INVITATION FOR TENDERS**

Ref No; - WCE/CS/

Date: - 13/2/2014

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

Dear Sir,

**Sub: Invitation of Tender for supply of Equipments for various departments.**

**And invitation for supply of Internet Services**

You are invited to submit your most competitive tender for supply of Equipments for various departments under the terms and conditions as enclosed herewith.

This tender form is also available on college website [www.walchandsangli.ac.in](http://www.walchandsangli.ac.in)

While submitting the Tender, the offer must be submitted in following fashion.

1. Two separate envelopes are to be used. First envelope should be titled as **“Specifications Envelope”** and it should contain documents such as:

i) Shop Act license ii) I-Tax Return iii) Experience certificate iv) Sales Tax Registration v) Authorized dealer / distributor certificate vi) Proprietary item certificate , if applicable, viii) Copy of the receipt for Rs 1000/- for purchase of the tender form from the college office OR D.D. for Rs 1000/- if the tender form is down loaded from the college web site (for cost of tender form which is non refundable & without which tender will not be considered), viii) Separate (not a single) E.M.D. D.D.s for each of the department as per page number 57. All of the above D.D.s must be drawn from nationalized bank, favoring **“The Director, Walchand College of Engineering, Sangli”** payable at Sangli, ix) Detailed Specification of the offered item (if it differs from what is indicated in the tender) as per the tender form, but with no indication of offered cost of the respective item. **All Pages must be signed and rubber stamped.** This envelope must be sealed. At the time of tender opening, if the specifications and the other documents in this envelope are found correct, second envelope will be opened, otherwise the tender submission is likely to be rejected. **The tender form is not transferable. Each bidder shall submit only one tender.**

2. Second envelope should be titled as **“Commercial Offer Envelope”** and it must be sealed. Your **“Commercial Offer”** sealed envelope should contain competitive offered prices for the items. Taxes, namely, VAT, Excise, LBT etc. should be clearly & separately indicated in respective columns and then **“Total Amount”** should be mentioned. Tenderers from Sangli-Miraj-Kupwad Corporation area must mention their LBT number. Separate envelopes (and not a single envelope) are to be used for each of the departments. All the department specific pages of the tender form **should be filled with the competitive prices offered, signed and rubber stamped on each page. The other specifications of the item, its make and model number, its detailed other features, leaflet of the items, customer list along with their contact details (where the tenderer has earlier supplied the item) etc., must be supplied in the “specifications envelope”.** If the space provided in the tender form is insufficient, additional pages may be attached appropriately.

3. Two of the separate sealed envelopes, namely, **“Specification Envelope”** and **“Commercial Offer Envelope”** must be sealed together in a **“common”** single envelope.

4. Each of these envelopes should be also titled with name of **department. Tenderer must also mention their Company name, Address, email, contact person, cell no. etc. on envelopes.**

5. **If tenderer has SSI registration, the tenderer will be exempted from paying E.M.D. only. The valid SSI registration documents, for this purpose, must be enclosed in “Specifications Envelope”. The tender without tender fee and EMD will not be considered.**

6. If the tenderer is selected for supply of items, the selected tenderer will give an undertaking for supply of items as per the college's terms and conditions, and the tenderer will supply the items accordingly. If the tenderer fails to supply the items as per college's terms and conditions, the EMD amount of the tenderer will not be returned. EMD will be returned to all other "not selected" tenderers only when the selected tenderer supplies all the items as per college's terms and conditions. The selected tenderer has to submit Bank guarantee for 10 % of total purchase value. The Bank Guarantee will be returned, if no violation of terms and conditions are found, only at the end of the warranty period or at the end of contract to the tenderer.

The supply place is normally respective departments of college and supply period is usually 15 days from the date of placing order.

We look forward to receive your tender and thank you for your interest in this system.

Yours faithfully,

**Director**

Walchand College of engineering, Vishrambag, Sangli

1. Civil Engineering Department

SN	Brief Specs	Qty	Basic Unit Price	VAT+LBT +Other	Total Amount	EMD at 3% on Total amount
	<b>Degree P.G.Equipment D.R.F. and P.G. R &amp; D D.R.F.</b>	<b>q</b>	<b>a</b>	<b>b</b>	<b>(a+b)*q</b>	
1	<b>LCD Projector</b> XGA resolution, 3000 Lumens, Aspect ratio 4:3, Contrast 3000:1, Lamp life 5000 Hs, RGB liquid crystal shuttle projection, <b>USB support ,</b>	2				
2	<b>Scanner</b> A4 Size Flatbed Scanner, 2400*4800 dpi – Reflective document, USB 2.0 Hi Speed, 4 Buttons-PACE	2				
3	<b>Printer</b> A4-Mono Laser Printer, true 600*600 dpi, 12/15PPM, 2 MB RAM	1				
4	<b>Anti-Virus Quick Heal Internet Security (desktop) – 3 Yrs update</b>	25				
5	Intel® Core™ i7-4600M Processor, Double Core, 4M Cache,2.9Ghz.,w/HD,Graphics 4600, 4 GB DDR3 @1600MHz SDRAM Memory – Expandable upto 16 GB,2.5"500GB solid state hybrid drive,8X DVD+/- RW Drive, AMD Radeon HD 8790M Graphics 2 GB GDDR5,10/100/1000 BASE-T Giga Ethernet, Internal Keyboard with Touchpad (English),15.6" HD (1366x768) Anti-Glare LED, Web Cam and Micro Phone, NO Media, Intel 6235 2x2 802.11n+BlueTooth 4.0+Widi,Intel 6235 2x2 802.11n+BlueTooth 4.0+Widi + widi driver, no wireless wan card , Dell Std Bag Pack, 6-cell (60Wh) Primary Battery	5				
6	Ink Tank PSC MFP Printer, Print resolution- True 5760 x 1440 dpi, Scan resolution-600 x 1200 dpi, Print Speed- Blk 33/clr 15 ppm, Connectivity - USB 2.0 High Speed, One touch Photo copying & scanning, Input Tray- 100 sheets, A4 Plain paper , 20 sheets, Premium Glossy Photo Paper, Network/ Duplex-Wireless 802.11 b/g/n, Mobile and Cloud Printing- iPrint, L-550/equivalent	1				

**GENERAL MAINTAINANCE**

S N	Brief Specs	Approx. quantity q	Basic Unit Price a	VAT+LBT+ Other b	Total Amount (a+b)*q	EMD at 3% on Total amount
1	<p><b>Anti-termite treatment</b></p> <ul style="list-style-type: none"> <li>• Anti-termite treatment for book bank issue section of library and other places in college premises.</li> <li>• Agency should have professional experience and trained to use pest control.</li> <li>• Agency should have license to stock and use of insecticides for commercial pest control operation.</li> <li>• Anti-termite treatment <b>guarantee for 10 years.</b></li> <li>• Agency should quote rate of Anti-termite treatment <b>on per Square-Meter basis.</b></li> <li>• Give your mode of treatment in details.</li> </ul>	500 Sqm				

2. Electrical Engineering Department:-

Item No.	Particulars	Approx. Qty	Basic Unit Price a	VAT + Octroi/LBT+other B	Total Amount (a +b)* q	EMD at 3% on Total amount
01	<b>Single Phase Dimmerstat : (Spindle Mounted)</b> Type: Input: 240V, 50Hz, Output: 0-270V Maximum load : 15 Amp	6 Nos				
02	<b>Three Phase Dimmerstat : (Spindle Mounted)</b> Input: 3-ph, 50 Hz, 415V, Output: 0-415V, Output current: 15A per phase	6 Nos				
03	<b>Diode Clamp Five Level Inverter</b> Diode clamped 5 Level Multi level inverter with 4 number of Isolated 100v, 3A dc supply- 24 numbers of 1200v , 90A IGBT – 24 number of OPTO ISOLATOR – IR2112 Driver circuit -24 numbers of isolated auxiliary power supply – ISO122 based Voltage & current sensor with amplifier circuit- over current protection circuit – with reset facility- FPGA based SPWM /SVPWM/ PD Method SPWM / PO Method SPWM program- 3 phase Induction motor – 1hp with load set up – FPGA Controller with MATLAB interface facility –24 Numbers of IC LTC491 based PWM Line driver & 24 Numbers of IC LTC491 based PWM Line receiver circuit- 20X 4 LCD – PWM increment /decrement touch key – USB based FPGA PGM Down loader	01				
04	<b>Programmable A.C Power supplies :</b> <ul style="list-style-type: none"> <li>• Single phase &amp; Three phase output with 230V &amp; maximum 20A rms line current.</li> <li>• Voltage and frequency should be controllable and harmonics in voltage can be added up to 49<sup>th</sup> harmonics.</li> <li>• This power supply should be useful for harmonics and transient condition system testing.</li> <li>• Input maybe single phase 230V, 50 Hz AC.</li> </ul>	01				
05	<b>Matrix Converter</b> 3 Phase to 3 phase matrix converter, – with Converter & inverter mode of SVPWM Operation- 18 numbers of Bi directional IGBT – 1200V 90A IGBT- 6 numbers of 3phase ZCD pulse- supply synchronization transformer-18 numbers of OPTO IC – 18 Number sof IR2112 Driver circuit- 18 numbers of Auxiliary power supply- ISO122 Based voltage sensor & current sensor circuit – RURP8100 High frequency diode based Clamp circuit circuit- clamp resistor- FPGA based SPWM /SVPWM Method with Converter & inverter mode of SVPWM Operation - program- 3 phase Induction motor – 0.5hp with load set up – FPGA Controller with MATLAB interface facility –18 Numbers of IC LTC491 based PWM Line driver & 18 Numbers of IC LTC491 based PWM Line receiver circuit- 20X 4 LCD – PWM increment /decrement touch key – USB based	01				

	FPGA PGM Down loader					
06	<b>Function Generators</b> : Sine, Cosine, Triangular, Square wave generation with variable frequency (10 Hz-10MHz, 0 to 30 Volts PP)	05				
07	<b>Dual Power supply</b> : 0-30 V, 5A, Variable with Short circuit and current limiting protection	15				
08	<b>Single Power Supply</b> : 0-30 V, 5A, Variable with Short circuit and current limiting protection	10				
09	Educational practice board TMS 320 28335 & C2000 series JTAG Emulator of PWM isolator module	01				
10	<p>SCADA system for TLS 08 : SCADA system for TLS08 –Technical Specifications: The SCADA system should have following features -</p> <ul style="list-style-type: none"> <li>• MODBUS Communication facility</li> <li>• USB / Ethernet based connection interface</li> <li>• Desktop Monitoring of the different points – Primary, Secondary, Receiving End, Load, Cap Bank</li> <li>• Parameters monitoring and control –</li> <li>• Active, Reactive and Apparent Power per phase and total</li> <li>• Power factor per phase and average of 3 phases</li> <li>• Voltages – per phase and average of 3 phases</li> <li>• Frequency ,Control of Primary Breaker</li> <li>• Control of Secondary Breaker , Auto and manual modes of operation</li> <li>• Control of Inductive Load Switch ,Control of Resistive Load Switch</li> <li>• Separate control of 10 stages of Capacitor bank</li> <li>• Auto and manual modes of operation</li> </ul>	01				
11	<p><b>Universal relay Test Kit</b> : Universal Relay Test Set: Technical Specifications:</p> <p>i) Voltage source 0-300Vmax (300VA min.) ii) Current source 0-100A max.(50 VA min.) iii) Phase angle adjustment between 0-90 degrees iv) Digital timer for trip time measurement v) MCB protection for panel. vi) With isolation transformer and cooling Fans. vii) Completely wired for use.</p>	01				
12	<b>Differential Relay Trainer</b> ; Microprocessor/ Microcontroller Based % Differential Relay trainer with transformer :	01				

	<p>Should have following features -</p> <ul style="list-style-type: none"> <li>• biased differential relay,</li> <li>• current rating 1A, with bias settings of from 10% to 50% in steps</li> <li>• Aux. supply 110VDC.</li> <li>• Suitable CTs for primary and secondary sides</li> <li>• Readout for primary and secondary currents, Set time, trip Time, DMT/IDMT setting, Biased/Unbiased status</li> <li>• Activation of Relay function, reset function, LCD display</li> <li>• Current input range 0-20 A, Input Voltage 0-230 V</li> <li>• Phase angle adjustment from 0-90 degrees</li> <li>• Aux. output contacts – 4 no. of NO type, 230 V, 10 A rating</li> <li>• PC interface facility, 3 phase variac, 2KVA, 3 phase transformer suitable for the set-up with inter winding terminals for fault creation.</li> </ul>					
13	<p><b>LCD Projector</b> : XGA resolution, 3000 Lumens, Aspect ratio 4:3, Contrast 3000:1, Lamp life 5000 Hs, RGB liquid crystal shuttle projection, <u>USB support</u> , Warranty – 2 Years – Epson X-14 or equivalent</p>	02 Nos				
14	<p><b>Printers:</b></p> <p>All in one (Scan with printer and copy) HP /Brother or equivalent make Printer - details specification 14 ppm (ISO) –A4 print &amp; copy, 150-sheet input tray+ 10- sheet priority feed, 1200x1200 dpi print resolution, manual duplex &amp; Booklet printing, watermarks, Economode,230 MHz with 32 MB Ram</p>	05 No.+ 1 for Office				
15	<p><b>8051 Microcontroller Kit :-</b></p> <ul style="list-style-type: none"> <li>• Based on Philips 89V51RD2. In System Programming (ISP)</li> <li>• Eight LEDs connected to port P1. On-board 16x2 character LCD module. Facility of connecting 40x2 LCD. Works simultaneously with 16x2 LCD , On-board 4x4 matrix keyboard. Configurable rows / columns through DIP switches Two on-board relays with LED indication Two keys for giving interrupts with LED indication. The same keys can be used as general purpose key inputs , I<sup>2</sup>C based EEPROM 24C512 (64K)</li> <li>• I<sup>2</sup>C based Real Time Clock (DS1307) with square wave output</li> <li>• I<sup>2</sup>C based 8 bit, 4 channel ADC and a DAC with voltage output. Protected ADC inputs</li> <li>• Facility of connecting user I<sup>2</sup>C peripherals, On board clock generator with separate on-off period adjustment, Serial port with DB9 female connector. The serial port pins can be disconnected if required , On-board logic probe with audio indication (buzzer) ,Facility of connecting stepper motor driver ,DIP switches for all peripherals. The peripherals can be disconnected easily if required</li> <li>• Test points provided for serial, I<sup>2</sup>C, Interrupts, ALE, PSEN, EA, Reset signals ,Fully</li> </ul>	20 Nos				

	<p>indented PCB, no need to refer the manual frequently ,Enclosed in quality wooden cabinet</p> <ul style="list-style-type: none"> <li>• Power supply accepts 8 to 15V with any polarity The user may take +5V supply from the kit for small external circuit Short-circuit protection with on-board 500mA fuse ,Industry grade sockets for peripherals ,All port pins are available on box-headers as well as on separate SIP connectors Hex file of complete kit testing program ,User manual and Laboratory Manual with sample programs</li> <li>• Facility of connecting various peripherals such as 7 segment display, External memory interface, multiprocessor module etc.</li> </ul>					
16	<p><b>PIC Microcontroller Kit :</b></p> <p>Based on Microchip 16F877A, Detachable daughterboard for microcontroller, for easy insertion and removal.</p> <ul style="list-style-type: none"> <li>• On board USB programmer. No need of buying extra programmer, Eight LEDs connected to port P1. Useful for I/O related experiments, On-board 16x2 character LCD module. Facility of connecting 40x2 LCD. Works simultaneously with 16x2 LCD, On-board 4x4 matrix keyboard. Configurable rows / columns through DIP switches, Key for giving external interrupts with LED indication. The same keys can be used as general purpose key inputs, Two on-board relays with LED indication, I<sup>2</sup>C based EEPROM 24C512 (64K)</li> <li>• I<sup>2</sup>C based Real Time Clock (DS1307) with square wave output, On-chip 10 bit ADC. Provision of giving analog signal with a potentiometer, Facility of connecting user I<sup>2</sup>C peripherals. Serial port with DB9 female connector. The serial port pins can be disconnected if required, On-board 555 timer with ON/OFF time adjustment for Time/frequency measurement, User manual, Facility for measuring MCU current. Facility of connecting stepper motor driver. DIP switches for all peripherals. The peripherals can be disconnected easily if required</li> <li>• On-board logic probe with audio indication (buzzer) Important Test points provided for Serial, I<sup>2</sup>C, Interrupts, Reset signals, fully indented PCB, no need to refer the manual frequently. Laboratory Manual with 15 hardware related experiments, Industry grade sockets for peripherals, all port pins available on box-headers as well as on separate SIP connectors, Power supply: 8 to15V with any polarity. Protection</li> </ul>	10				



	with on-board 500mA fuse, Hex files of complete kit testing program.					
17	<p><b>Magnetic Levitation Apparatus : Specifications</b></p> <ul style="list-style-type: none"> <li>• High Flux Drive Coils at Top &amp; bottom</li> <li>• Laser Feedback Sensors Top &amp; bottom</li> <li>• Low Friction Guide Precision ground &amp; polished glass</li> <li>• Rare Earth Magnets NbFeB, one or two at a time for SISO or MIMO</li> <li>• Laser Conditioning Electronics to provide high resolution position measurement</li> <li>• Magnet Storage Safely stows high strength magnets</li> <li>• Attachment For Turntable Optional, demonstrates induced field levitation</li> </ul> <p>Range of Motion- 15 cm total. 6 cm indefinitely 10 cm momentarily. Actuator Magnets- Very high flux, rare earth NdFeB, with laser reflective coating. Sensors- Laser light amplitude with low noise, stray light rejection circuitry. Drive Coils- Low inductance, high field constant, air core.</p> <p>Drive Amplifiers- Linear range <math>\pm 40V</math> out, 500 Hz current loop bandwidth, Size &amp; Weight- 36x36x30 cm. (14x14x12 in.), 5.1 kg. (11 lb.), Turntable Accessory- Dynamically balanced spin platter, 0-500 RPM, Accessory Sensor &amp; Actuator- Optical encoder, 12,000 counts/rev. Rare earth, servo motor</p> <p>Accessory Size &amp; Weight- 38x38x15 cm. (15x15x6in.), 4.3 kg. (9.5 lb.)</p>	01				
18	<p><b>Solar PV Grid Tied System:</b></p> <ul style="list-style-type: none"> <li>• Artificial Grid unit for 200V Ac output voltage, 200 Watt power battery Bank (12V/26 Ah) 2 units with grid inverter, suitable control unit and required accessories.</li> <li>• PV modules (230 Wp)- 2 unit</li> <li>• Control unit</li> <li>• Accessories : 1) Power Analyzer 2) Experimental manual 3) connecting leads 4) Shading element</li> </ul>	01				
19	<p><b>CSTR Control System Trainer : which includes</b></p> <ul style="list-style-type: none"> <li>• Feedback control. Feedback Pressure control</li> <li>• Feedback Temperature controls. PID control. P, P+, P+I, P+I+D CONTROLLER ACTION.</li> <li>• Hot Water Tank (HWT), Reactant Tanks, Product Tank, Pump for HWT, Pump for Reactant tanks, Piping, temperature transmitter. Electronic PID Controller, Computer.</li> </ul>	01				

	<p>SCADA application software</p> <ul style="list-style-type: none"> <li>• Pressure transmitter, level Transmitter, Level Indicator, Miniature level Switch, E/P converter</li> <li>• Heater Coil, Rotameter, Thermostat (temperature controller) and electrical Control panel.</li> </ul>					
20	<p><b>Rheostats:</b></p> <p>(1) 20 ohm,8.5 Amp range Rheostat for practical use only, Make: Toshniwal or equivalent make</p> <p>(2) 350 ohm,1.2 Amp range Rheostat practical use only, Make: Toshniwal or equivalent make</p> <p>(3) 700/750 ohm,1.2 Amp range Rheostat practical use only, Make: Toshniwal or equivalent make</p> <p>(4) 170 ohm, 2.8 Amp range Rheostat practical use only, Make: Toshniwal or equivalent make</p>	10 each				
21	DC 0-5-10 Ammeter	Permanent magnet, Class 1.0,IS 1248	10			
22	DC 0-100 mA Ammeter	Permanent magnet, Class 1.0,IS 1248	05			
23	DC 0-15-30 Amps Ammeter	Permanent magnet, Class 1.0,IS 1248	10			
24	DC 0-0-30V Voltmeter	Permanent magnet, Class 1.0,IS 1248	10			
25	DC 0-75-150-300 V, Voltmeter	Permanent magnet, Class 1.0,IS 1248	10			
26	AC Ammeter 0-5-10 Amps	Moving coil, Class 1.0,IS 1248	05			
27	AC Ammeter 0-15-30 Amps	Moving coil, Class 1.0,IS 1248	05			
28	<p><b>Brief Proposal; for Setting up 15 KW Grid Interactive Solar Generating System (without Battery Bank) : system components:</b></p> <ul style="list-style-type: none"> <li>• Solar PV Modules Multi Crysteline Technology of 200 to 280 watt peak of Vikram/Waaree make Smart Grid Interactive Inverter of SMA /Refusol/Schneider or equivalent make</li> <li>• Electrical Switchgear and cables any reputed make</li> </ul>	01				
29	<p><b>Thermal Imager with following specifications:</b></p> <p>IR resolution (FPA size) : 160 x 120 FPA Uncooled Microbolometer, Spectral band : 7.5 µm to 14 µm (long wave), Capture or refresh rate : 9 Hz , NETD (Thermal sensitivity) : &lt; 0.08 °C at 30 °C target temp (80 mK), FOV (Field of view) : 22.5 °H x 31 °V, IFOV (Spatial resolution) : 3.39 mRad,</p> <p>Temperature measurement range : -20 °C to + 150 °C (-4 °F to 302 °F), Temperature measurement accuracy: ± 2 °C or 2 % (at 25 °C nominal, whichever is greater), Standard</p>	01				

	palettes : Blue-Red, Ironbow, Grayscale, Amber, Visible camera : 2 megapixel industrial-grade, Memory storage : 2 GB SD memory card, Direct download capability : mini USB direct download, Operating temperature range : -10 °C to +50 °C (14 °F to 122 °F) , Storage temperature range : -20 °C to +50 °C (-4 °F to 122 °F), EMI, RFI, EMC : EN61326-1; FCC Part 5 Make:-Fluke FLK-Ti105 9HZ THERMAL IMAGER(-20 C to + 250 C) FLK-Ti105 9HZ or equivalent make					
30	<b>Earth tester:---</b> Specifications Range 3 p method : 0.01 ohms to 99.99 Kilo ohms 4 p method : 0.001 to 99.99 kilo ohms Earth resistance with two clamps : 0.01 to 500 ohms Resistivity : Wenner automatic calculations, DC resistance measurement : Two wire and four wire 0.12 to 9999.9 kilo ohms, Memory : 512 Memory locations, Communications: Optical /usb link, Electrical safety : 50 volts cat iv iec 61010 & 61557	01				
31	<b>SCOPEMETER 4 CHANNEL 100 MHZ COLOR :</b> Bandwidth : 100MHZ, Number of Channels: 4 channels, Real-time sample rate: 1.25 GS/s, Inputs: 4 scope, Independently floating isolated inputs: Up to 1000 V CAT III/600 V CAT IV between inputs, references and ground, Time base range: 5 ns, Input sensitivity : 2 mV-100 V/div, Glitch capture : 8 ns, Scope measurements : Cursor: 7 Automatic: 30, Maximum record length : Scope Record mode: 30,000 pts, Scope mode: 10,000 pts per input, Persistence : Digital persistence giving analog oscilloscope-like waveform decay, Waveform Compare : Waveform reference with automatic Pass/Fail testing Make:- Fluke UNI SCC FLUKE-190-104/UN/S or equivalent make AC/DC Current Clamp with Male BNC Connector 30A AC and DC current measurement Make:- I30 Fluke or equivalent make	01				
32	<b>Multimeter with following Specifications (Fluke 289/287 or Equivalent) :</b> ➤ <b>Voltage DC : Accuracy Range and Resolution : 0.025 % , 50.000 mV, 500.00 mV, 5.0000V, 50.000V, 500.00 V</b> ➤ <b>Voltage AC : Accuracy Range and Resolution : 0.4 % (true-rms), 500.00 mV, 5.0000 mV, 50.000V, 500.00 V, 1000.00 V</b> ➤ <b>Current DC : Accuracy Range and Resolution : 0.06 % , 500.00 µA, 5000.0 mA, 50.000 mA, 400.00 mA, 5.0000 A, 10.000 A</b> ➤ <b>Current AC : Accuracy Range and Resolution : 0.51 % (true-rms), 500.00 µA, 400.00 mA, 5.0000 A, 10.000 A</b> ➤ <b>Temperature (excluding probe) : Accuracy Range and Resolution : 1.0 % , - 200.0 °C to 1350.0 °C (-328.0 °F to 2462.0 °F</b> ➤ <b>Resistance : Accuracy Range and Resolution : 0.05%, 500.00 Ω, 5.0000 kΩ, 50.000 k Ω, 500.00 k Ω,5.0000 M Ω, 50.00 M Ω, 500.0 MV</b> ➤ <b>Resistance 10 50 Ω (2 wire connection): Accuracy Range and Resolution : 0.15 % + 20, 50.000 Ω</b>	01				

	<ul style="list-style-type: none"> <li>➤ <b>Capacitance : Accuracy Range and Resolution : 1.0 %</b>, 1.000 nF,10.00 nF 100.0 nF, 1.000 μF, 10.00 μF, 100.0 μF, 1000 μF, 10.00 mF, 100.00 mF Ω</li> <li>➤ <b>Frequency : Accuracy Range and Resolution : 0.005% + 5</b>, 99.999 Hz, 999.99 Hz, 9.9999 kHz, 99.999 kHz, 999.99 kHz</li> </ul>					
33	<p><b>FEM BASED 2D/3D ELECTRICAL MACHINE DESIGN SOFTWARE.</b></p> <p>The software includes 2D/3D magnetic transient, AC electromagnetic, magneto static, electrostatic, DC conduction, and electric transient solver that accurately solves for force, torque, capacitance, inductance resistance and impedance. Soft ware should be suitable for design of motor generators, relays, permanent magnet, Inverters, converters and electromagnetic shield. No. of users = 20</p>	01				
34	<p><b>Rooftop wind power generation system</b></p> <p>Rooftop Wind power generation system consisting of roof top wind turbine, PM generator, converter, Battery and inverter with associated control. The system has following specifications.</p> <p>Wind turbine suitable for rooftop mounting with 6 meter tower suitable for mounting on the building terrace.</p> <p>Maximum power = 1.4 KW , Rated wind speed = 15 m/sec, Cut in speed = 3 m/sec , Permanent magnet generator = 1.4 KW rated for 230 volts. Inverter should be suitable for 3 phase 400 volts 50 Hz grid connection. The total cost includes constructing the tower at site and Commissioning of the complete system at site.</p>	01				
35	<p>Voltas/LG/Llyod/Blue star or equivalent make 2.00 ton split air conditioning unit with condenser and evaporator of copper make.</p> <p>Stating clearly,</p> <ol style="list-style-type: none"> <li>a. Star rating</li> <li>b. output watt</li> <li>c. Warranty of 5 years for compressor etc complete as directed by engineer incharge.</li> </ol> <p>Extra copper piping as per on site requirement.</p>	04				
36	<p><b>STATCOM FACTS CONTROLLER SETUP::</b></p> <p>Three phase input AC Source (3Phase Alternator set up)</p> <p><b><u>1 Three phase Alternator set up</u></b></p> <p>3 Phase / 1 KVA / alternator coupled with suitable AC motor with necessary drive provided for transmission line input.</p> <p><u>Alternator specification</u></p> <ul style="list-style-type: none"> <li>• 3 phase, 1KVA, 1500 rpm, salient pole type, coupled with 2 hp, 3phase 220volts AC Motor, 1500rpm. with speed sensor and digital speed indicator</li> <li>• 2 HP / single phase input, with 3 phase output VFD controller to be provided for</li> </ul>	01 Set				

AC motor Speed control

**2 IGBT BASED VOLTAGE SOURCE INVERTER POWER MODULE :**

- 600V, 20A 3 Phase IGBT based inverter bridge ( SMART POWER MODULE – SPM)
- 1200v, 25A Uncontrolled rectifier with capacitors for converting AC input to DC link voltage.
- Outputs of IGBTs in SPM terminated at Banana sockets
- Hall sensors provided to sense 3 phase ac output current , dc link current and the DIPM output currents.
- 6 High side and 6 low side High speed OPTO's to isolate gating signals to SPM
- Optically isolated fault output from DIPM
- Built in control power supply of +/-15vdc
- DC voltmeter to measure the dc link voltage
- Protection for short circuit, over current, earth fault, over voltage, under voltage and over temperature provided
- Input: 1 Phase 230V/300vdc
- Output AC: variable frequency and voltage
- FRC connectors provided to interface to DSP PWM Controller trainer with SPM.
- One number of 1 KVA auto transformers for VSC input voltage.

**3 DSPIC Controller for PWM Generation**

This DSP/DSPIC controller is used to generate the PWM signals for Voltage source Converter power Module.

- TMS320FC2812 / DSPIC 33EP512MU8154 Based Controller
- DSP processor TMS320F2812, 32 position fixed point high speed processor, highest operating frequency 150Mhz;
- Internal built-in 128K \* 16 FLASH,
- Internal built-in 18K \* 16 SRAM;
- Internal built-in 4K \* 16 BOOT ROM;
- 12 Numbers of PWM Outputs
- I/O Termination for Speed sensor interface
- RS232 /USB connector for programming down loading
- 20 \*4 LCD display
- Digital Keys for PWM parameter adjustments
- ADC input connector
- Built in isolated 5V DC power supply
- All are mounted on a nice cabinet with power ON/OFF Switch

	<ul style="list-style-type: none"> <li>• 230v ac input</li> </ul> <p><u>Sample Program for DSPIC</u> sample program FACTS control</p> <ol style="list-style-type: none"> <li>1. Facts controller-SSSC sample program <ul style="list-style-type: none"> <li>• Facts controller-STATCOM</li> </ul> </li> </ol> <p>Shunt &amp; Series Transformer With Filter , Meter and load set up</p> <ul style="list-style-type: none"> <li>• One No. of Three Phase 1.5 KVA Special wound transformers act as</li> <li>• Series Transformer with capacitor (5A) &amp; inductor ( 5A ) filter provided for SSSC applications</li> <li>• DIGITAL METERS AND LOAD SETUP</li> <li>• Digital meters provided to indicate sending end, receiving end parameters and Feed back to DSP controllers.</li> <li>• Sending End / Receiving End Parameters like <b>Voltage, Current, Power factor, Active Power &amp; Reactive Power</b></li> <li>• Three Phase RLC Load of 2KVA Capacity is provided as Load</li> </ul> <p><b>4 Solar panel based 3 Phase AC Source –Grid Connected : GRID Connected Solar power Generation System- 1000W</b> This set up is designed to study the working principle of Grid connected power generation system using solar system. This set up consists of</p> <ul style="list-style-type: none"> <li>• One number of 1000W solar Panel is provided and it is fixed on the metal frame</li> <li>• Halogen Lamp array is Mounted on the metal frame for testing solar Panel</li> <li>• Provision to adjust the lamp position in 30-180degree</li> <li>• Provision to adjust the lamp Height in 30-180degree</li> <li>• Specifications <ul style="list-style-type: none"> <li>○ 48VDC Output, 1000W</li> </ul> </li> </ul> <p><b><u>Battery charger set up with Battery</u></b> This set up consists of (1) 12v Battery, (2) Battery Charger with MPPT Technology. Detailed specification of this set up</p> <ul style="list-style-type: none"> <li>• Four number of 12V /40AH Battery is provided</li> </ul>					
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	<ul style="list-style-type: none"> <li>• One number of Battery charger with MPPT Technologies for Solar input</li> <li>• One number of Battery charger with MPPT Technologies for Wind input</li> <li>• Necessary Analogue meter is provided for <ul style="list-style-type: none"> <li>▪ Solar Panel output voltage , Current measurement</li> <li>▪ Battery charger output voltage , Current measurement etc</li> <li>▪ <b>DC –AC inverter (1000W)</b></li> </ul> </li> </ul> <p>This set up is used to convert the battery dc voltage to three AC using MOSFET inverter. This set up consists of</p> <ul style="list-style-type: none"> <li>• MOSFET Based sine wave inverter power circuit</li> <li>• 48/110VDC Input, 230VAC Output, 3 phase</li> <li>• 1000W Capacity</li> <li>• Necessary meter for output ac voltage , current measurement <ul style="list-style-type: none"> <li>• Single phase Lamp load is provided @ 1000W Ratings</li> <li>▪ Different load ON/OFF Switch is provided</li> </ul> </li> </ul>					
37	<p><b>INVERTER POWER MODULE</b></p> <ul style="list-style-type: none"> <li>* Input : 3 phase 50 Hz.</li> <li>Output : 400V/10A , AC/DC on each Leg of 3 phase Bridge</li> </ul> <p><b>POWER MODULE</b></p> <ul style="list-style-type: none"> <li>* <b>1200V, 25A, 12 IGBT 6 leg Inverter Bridge( 6 leg, 12 IGBT, 2 per leg)</b></li> <li>* 1200V, 10A IGBT for over voltage Breaking</li> <li>* Built - in over voltage, under voltage, over current &amp; over Temperature Protection</li> <li>* 750V, 8A DC bus, Electrolytic DC Power Capacitors 2 nos., Center point of capacitor branch shall be brought out for measurements/circuit connections.</li> </ul> <p><b>ADDITIONAL FEATURES</b></p> <ul style="list-style-type: none"> <li>* 1200V, 25A Converter Bridge for AC-DC power conversion</li> <li>* 4 Nos of Hall Effect current sensors to sense the DC Link current &amp; 6 output current of the Inverter Bridge</li> <li>* 1 No of Hall Effect Voltage sensor to sense DC Link voltage,</li> <li>• All the PWM signals shall be isolated using Opto Isolator,</li> <li>• Protection circuit for over current with LED indication</li> </ul>					

	<ul style="list-style-type: none"> <li>* Optically Isolated Fault signal from the IPM shall be given to the Embedded/DSP controllers for protection.</li> <li>* Independent Power supplies for all Isolated circuits.</li> <li>● 0-900V Voltmeter to Indicate the DC Link Voltage</li> <li>* All current, PWMS &amp; Feedbacks shall be terminated at Front panel</li> <li>* FRC Connectors shall be provided to Interface with the Embedded/DSP controllers</li> <li>* All the Input/Output Lines shall be terminated at Banana sockets.</li> <li>* Separate use of Rectifier and Inverter power circuit shall be possible by providing separate connections on front panel.</li> </ul>					
38	4 Channel digital storage oscilloscope sampling rate 1GS/s, Bandwidth 100 MHz, USB support on flash drive storage, auto measurement (Aplab/Tektronix or equivalent make)	02 Set				
39	Providing to the 3 seated chairs, 18 mm pre-laminated plywood full writing pads with PVC lipping, 18 gauge perforated m.s. sheet for storage tray and 16 gauge m.s. square/rect/round section framework with powder coating and 2 coats of approved shade & colour as directed by the work in charge inclusive of fixing the said chairs using expansion bolts on the existing floor	20 Nos				

### 3. Applied Mechanics Department:

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + Octroi/LBT+other B	Total Amount ( a +b) *q	EMD at 3% on Total amount
1	<b><u>HIGH SPEED POWER CUTTER</u></b> For cutting rock, tiles, paving blocks etc.	1				
2	<b><u>FLOWMETER AND FLOWGAUGE</u></b> To measure flow, consistency and workability of fresh concrete.	1				



3	<b><u>Work Station</u></b>					
	HP Z820 Workstation (ENERGY STAR) OR EQUIVALENT					
	<b>Operating system:</b>	Windows 7 Professional 64 (available through downgrade rights Pro 64)				
	<b>Processor:</b>	Intel® Xeon® E5-2637 v2 (3.5 GHz, 15 MB cache, 4 cores)				
	<b>Number of Processors:</b>	1				
	<b>Chipset:</b>	Intel® C602				
	<b>Form factor:</b>	Rackable minitower				
	<b>Memory</b>					
	<b>Standard memory:</b>	16 GB 1866 MHz DDR3 ECC Unbuffered RAM (2 X 8 GB)				
	<b>Memory slots:</b>	16 DIMM				
	<b>Storage</b>					
	<b>Internal drive bays:</b>	Four 3.5"	1			
<b>External drive bays:</b>	Three 5.25"					
<b>Internal drive:</b>	1 TB 7200 rpm SATA					
<b>Storage controller:</b>	Integrated SATA 6.0 Gb/s					
<b>Optical drive:</b>	SATA Super Multi DVD+/-RW					
<b>Graphics</b>						
<b>Graphics:</b>	NVIDIA Quadro K4000 (3 GB)					
<b>Expansion features</b>						
<b>Ports:</b>	4 USB 3.0 5 USB 2.0 2 IEEE 1394a 2 microphone 1 audio line out 1 headphone 1 audio line in					

<b>Slots:</b>	1 serial 2 PS/2 (keyboard & mouse) 2 RJ-45 to integrated Gigabit LAN  3 PCIe Gen3 x16 1 PCIe Gen3 x8 1 PCIe Gen3 x4 1 PCIe Gen2 x4 1 PCI 1 14-in-1 media card reader (optional)					
<b>Communication features</b>						
<b>Network interface:</b>	Integrated Intel 82579LM PCIe Dual GbE controller					
<b>Audio:</b>	Integrated High Definition Realtek ALC262					
<b>Input Device:</b>	<ol style="list-style-type: none"> <li>1. HP USB Standard Keyboard,</li> <li>2. HP USB Laser Scroll Mouse</li> </ol>					
	<ol style="list-style-type: none"> <li>1. <b>Monitor</b></li> </ol>					
<b>Output Device:</b>	<b>GENERAL</b>					
	Display	24" inch LED Backlit LCD Display				
	Backlight	LED Backlight				
	Panel Type	IPS				
	Resolution	1920 x 1080 pixels				
	Full HD	Yes				
<b>CONNECTIVITY</b>						
	HDMI	Yes				
	DVI	Yes				
	VGA	Yes				
	Other Connectivity Features	DVI-D				
	<ol style="list-style-type: none"> <li>2. <b>Speakers 7.1</b></li> </ol>					
	<ol style="list-style-type: none"> <li>3. <b>Printers</b></li> </ol>					
	<b>Print Quality</b>	1200x1200dpi				
	<b>Multi function</b>	Print, Scan and Copy				
	<b>Print Type</b>	B/W Laser Jet				
	<b>Duplex Printing</b>	Automatic Two-Sided Printing				

		<b>Paper Size</b>	A6 – A3			
	<b>Power supply:</b>	1125W 90% efficient, wide ranging, active PFC				
	<b>UPS</b>	Compatible with workstation				
	<b>Dimensions and weight</b>					
	<b>Dimensions (w x d x h):</b>	8 x 20.7 x 17.5 in (20.3 x 52.5 x 44.4 cm)				
	<b>What's included</b>					
	<b>Security management:</b>	Cable Lock Support (standard - cable optional) Chassis Intrusion Sensor (standard) Serial, Parallel, USB, Audio, Network Enable/Disable (standard) Removable Media Write/Boot Control (standard) Power-On Password (standard) Setup Password (standard) Kensington Cable Lock (optional)				

4	<b>Computer</b>		5					
	<b>Operating System</b>	Windows 7 Professional 64-bit						
	<b>Processors</b>	Intel® Core™ i7-4960HQ Processor (6M Cache, up to 3.80 GHz)						
		Clock Speed						2.60 GHz
		# of Cores/ # of Threads						4 / 8
	<b>RAM</b>	Memory Types						DDR3L
		RAM						8 GB
		Memory Speed						1600 MHz
	<b>Storage</b>	Type (SSD/HDD)						HDD
		Capacity						1TB
		Rotational Speed (RPM)						7200 RPM
		Interface (SATA2/3)						SATA 3Gb/s
		Type (SSD/HDD)						HDD
	<b>Graphics</b>	Memory Type						DDR3
		Memory Capacity						2 GB
		Graphic Processor						NVIDIA GeForce GT 740M
	<b>Chipset</b>	Intel H67						
	<b>Peripherhals</b>	Keyboard						2.4GHz usb Keyboard
		Mouse						USB Mouse
<b>Connectivity Options</b>	DVI	Yes						
	HDMI	Yes						
	USB 2.0	Front 2, Rear 4						
	USB 3.0	Front 2, Rear 2						
	SPDIF Audio Out	Yes						
<b>Compatible Displays (screen size diagonally measured)</b>	21.5 inch LED Backlit LCD Display, Full HD 1920 x 1080 pixel Resolution							

	<b>Audio:</b>	Integrated High Definition Realtek ALC262					
	<b>Chassis Format / Standard</b>	Micro-ATX					
5	<b>All in one printer (Colour)</b>						
	<b>Detailed Technical Specification Multifunction Printer</b>						
	<b>CONNECTIVITY</b>						
	USB support:	USB 2.0					
	<b>COPY</b>						
	Maximum Copies:	20					
	<b>GENERAL</b>						
	Functions:	Print, Copy, Scan, Fax					
	Printing Method:	Inkjet					
	Printing Output:	Colour					
	Additional Features:	Paper Feed Method: Friction Feed, Maximum Paper Size: 8.5 x 44 inch, Superb Print Speed, Space Saving Design, One Touch Scan and Copy, Max Copy Speed for Black Draft Text - Memo (A4): Approx. 5 sec (Draft) and for Max Colour Draft Text - Memo (A4) : Approx. 10 sec (Draft), Standard Copy Mode, Nozzle Configuration: 180 Nozzles Black, 59 Nozzles Each Colour(Cyan, Magenta, Yellow)	1				
	<b>PAPER HANDLING</b>						
	Input tray capacity:	100 pages					
	Media size supported:	A4, A5, A6, B5, C6, DL					
	Output tray capacity:	30 sheets					
	Media types supported:	Paper, Envelope					

	<p><b>PRINT</b></p> <p>Print Speed Color: 15 ppm</p> <p>Print speed Photo (10 x 15): 69 sec</p> <p>Max Print Resolution (Colour): 5760 x 1440 dpi</p> <p>Duplex Print: Manual</p> <p>Print Speed Mono: 33 ppm</p> <p><b>SYSTEM REQUIREMENTS</b></p> <p>Operating System : Windows XP and Above, Mac OS: 10.5.8, 10.6.x, 10.7.x</p> <p><b>SCAN</b></p> <p>Scan Type: Flatbed</p> <p>Scan Method: Contact Image Sensor (CIS)</p> <p>Bit depth Mono: 16-bit, 8-bit, 1-bit</p> <p>Scan area size: 216 x 297 mm</p> <p>Bit depth Colour: 48-bit, 24-bit</p> <p>Scanning Speed Mono: 0.0072 sec</p> <p>Scanning Speed Colour: 0.0143 sec</p> <p>Optical scanning resolution: 600 dpi</p>					
6	<p><b>All in one printer (B/W)</b></p> <p><b>Detailed Technical Specification of LaserJet Printer</b></p> <p><b>CONNECTIVITY</b></p> <p>USB support: USB 2.0</p>	4				

<b>COPY</b>						
Copier resize:	25 % - 400 %					
Copy speed Mono:	32 cpm					
Maximum Copies:	99					
Copy Speed Color:	9 cpm					
<b>FAX</b>						
Auto Dial:	Yes					
Resolution:	200 x 100 dpi					
Modem Speed:	33.6 Kbps					
Memory Capacity:	180 pages					
Speed Dials Memory:	60 Numbers					
Fax delayed sending:	Yes					
<b>PAPER HANDLING</b>						
Input tray capacity:	120 pages					
Output tray capacity:	50 sheets					
Media types supported:	Paper, Envelopes					
Borderless printing:	Yes					
Media size supported:	A4, A5, A6, B5, DL, C6					
<b>PRINT</b>						
Print Speed Mono:	34 ppm					
Print Speed Color:	15 ppm					
Print speed Photo (10 x 15):	48 sec					
Max Print Resolution (Colour):	5760 x 1440 dpi					

	<p><b>SCAN</b></p> <p>Scan Method: Contact image Sensor (CIS)</p> <p>Bit depth Colour: 48-bit, 24-bit</p> <p>Bit depth Mono: 16-bit, 1-bit</p> <p>Optical scanning resolution: 1200 dpi</p> <p>Scan Type: Flatbed</p> <p>Scan area size: 216 x 297 mm</p> <p>Scanning Speed Mono: 0.0088 sec</p> <p>Scanning Speed Colour: 0.0254 sec</p> <p><b>SYSTEM REQUIREMENTS</b></p> <p>Operating System : Windows XP, Windows XP Professional, Windows Vista, Windows 7, Mac OS X v10.4.11</p>															
7	<p><b>External Hard Disk</b></p> <hr/> <p><b>SPECIFICATIONS OF 1 TB EXTERNAL HARD DISK</b></p> <p><b>GENERAL SPECIFICATIONS</b></p> <table border="1"> <tr> <td>Capacity</td> <td>1 TB</td> </tr> <tr> <td>Connectivity</td> <td>USB 3.0</td> </tr> <tr> <td>Dimensions</td> <td>14.5 x 81.1 x 123.4 mm</td> </tr> <tr> <td>Form Factor</td> <td>Portable</td> </tr> <tr> <td>OS Supported</td> <td>Windows: XP SP3 (32-bit and 64-bit), Mac OS X v10.6</td> </tr> </table>	Capacity	1 TB	Connectivity	USB 3.0	Dimensions	14.5 x 81.1 x 123.4 mm	Form Factor	Portable	OS Supported	Windows: XP SP3 (32-bit and 64-bit), Mac OS X v10.6	1				
Capacity	1 TB															
Connectivity	USB 3.0															
Dimensions	14.5 x 81.1 x 123.4 mm															
Form Factor	Portable															
OS Supported	Windows: XP SP3 (32-bit and 64-bit), Mac OS X v10.6															



8	<b>Pen Drive (USB 3.0)</b> <table border="1"> <tr> <td>Capacity</td> <td>16GB</td> </tr> <tr> <td>Size</td> <td>70mm x 21mm x 8.1mm</td> </tr> <tr> <td>Weight</td> <td>8.5g</td> </tr> <tr> <td>Interface</td> <td>USB 3.0</td> </tr> <tr> <td>Certificate</td> <td>CE, FCC, BSMI, C-tick, KCC</td> </tr> <tr> <td>Accessories</td> <td>JetFlash 780</td> </tr> <tr> <td>Read-Write</td> <td>Read 140 MByte/s, Write 40 MByte/s</td> </tr> </table>	Capacity	16GB	Size	70mm x 21mm x 8.1mm	Weight	8.5g	Interface	USB 3.0	Certificate	CE, FCC, BSMI, C-tick, KCC	Accessories	JetFlash 780	Read-Write	Read 140 MByte/s, Write 40 MByte/s	2				
Capacity	16GB																			
Size	70mm x 21mm x 8.1mm																			
Weight	8.5g																			
Interface	USB 3.0																			
Certificate	CE, FCC, BSMI, C-tick, KCC																			
Accessories	JetFlash 780																			
Read-Write	Read 140 MByte/s, Write 40 MByte/s																			
9	<b>Pen Drive (USB 2.0)</b> <b>SPECIFICATIONS OF PEN DRIVE</b> <table border="1"> <tr> <td>Type</td> <td>Utility Pen drive</td> </tr> <tr> <td>Capacity</td> <td>8 GB</td> </tr> <tr> <td>Transfer Speed</td> <td>4 MB/s</td> </tr> <tr> <td>Interface</td> <td>USB 2.0</td> </tr> <tr> <td>Form Factor</td> <td>Standard Flash Drive</td> </tr> </table> <b>WARRANTY</b> <table border="1"> <tr> <td>Warranty Summary</td> <td>2 Years Replacement Warranty</td> </tr> </table>	Type	Utility Pen drive	Capacity	8 GB	Transfer Speed	4 MB/s	Interface	USB 2.0	Form Factor	Standard Flash Drive	Warranty Summary	2 Years Replacement Warranty	10						
Type	Utility Pen drive																			
Capacity	8 GB																			
Transfer Speed	4 MB/s																			
Interface	USB 2.0																			
Form Factor	Standard Flash Drive																			
Warranty Summary	2 Years Replacement Warranty																			

**4. Information Technology Department**

<b>Item No.</b>	<b>Particulars</b>	<b>Approx. Qty q</b>	<b>Basic Unit Price a</b>	<b>VAT + Octroi / LBT+ other b*</b>	<b>Total Amount (a+b)*q</b>	<b>EMD at 3% on Total amount</b>
<b>1</b>	Server: 4 * eight core AMD opteron 6212, Chipset SR 5690, Quad Intel Gigabit Ethernet, 16x2GB 1333MHz DDR3 ECC, Cahsis 6X Hotswap 3.5" SATA/SAS 1400W Redundant Power, Hard Disk 2X 2TB SAS 6 GB/s 7200 RPM, 128GB SATA SSD, slim 24X CDR combo, Dual Port Infiniband DDR adapter, 2X Intel 10G Ethernet N/w adapter	3				
<b>2</b>	Intel Core i7 4770, Asus Maximus VI - E, RAM DDR3 16GB - 1600MHz FSB Extreme Series, Hard Disk - 2TB Enterprise Edition, Server / Workstation Chasis, SMPS 1300W, Logitech M/M USB Combo MK 330, Solid state device 128 GB.	2				
	NAS Dual core Intel 2.6 GHz , DRAM 2 GB, 4 Hard disk hot swappable tray with key lock, 4GB RJ45 port 2 USB 3 port, 3 USB 2 port	1				
<b>3</b>	NAS Intel atom processor , 2 GB RAM, 2 RJ45, 10/100/1000 Base Tx auto MDI/MDi-X WOL support, 4 USB2 port, USB 3 port	1				
<b>4</b>	3.5 inch, 4 TB NAS drive	6				
<b>5</b>	Computer Table : 60" L x 24" W x 30" H, DSS pipe frame 3/2" x 3/2", 10 mm glass-top, keypad (sliding 2), Adjustable Screen holder Support, Nylon bushing	10				

## 5. Electronics Engineering

Item No.	Particulars	Qty q	Basic Unit Price a	VAT + Octroi / LBT+other b*	Total Amount (a+b)*q	EMD at 3% on Total amount
	<b>Items proposed under DRF</b>					
1	<b>NETSIM – Network Simulator (Academic version 7.0 or higher) (20 Users)</b> <b>Protocols :</b> Aloha, Slotted Aloha, Token Bus, Token Ring, CSMA / CD, Fast and Gigabit Ethernet, Switching, Wireless LAN - 802.11 a / b / g, Routing - RIP, OSPF, BGP with <b>Wireless LANS</b> <b>Net Patrol - Real time packet capture</b> <b>Network Programming Exercises in C / C++</b> With Protocol Primitives C Source Code Library	1				
2	<b>On line UPS</b> Output parameters: - 6 KVVA, 1 Ph, 230V, 50Hz, Voltage regulation 2%, Input parameters:- Should be available protection against Spikes, Voltage range from 180V to 270V, 1 Ph, 50Hz Battery :- suitable for 3 to 6 Hrs battery backup, 12V-100AH SMF, Quanta / Uplus / Emerson Make only, with suitable battery rack.	1				
3	<b>Universal IC Tester</b> Suitable for all Digital IC, Linear IC, Microcontrollers, RAM, ROM, PAL, PLA etc.	2				
4	<b>Signal Strength Meter</b> TV signal strength meter; input from Yaggi-Uda Antenna, measurements in uV/mV, mW.	1				
5	<b>Pattern Generator</b> 4:3 and 16:9 format patterns, Compatible with PAL, SECAM and NTSC systems, Addition of an electronic circle on all patterns (except color bars), VPS / PDC control signals, Multi-standard and multi-system analogue TV signals, RS-232 remote control	1				
6	<b>Digital TV trainer Kit</b> 45 to 865 MHz and from 950 to 2150 MHz, Reception: PAL, SECAM and NTSC systems, TFT/LCD display, Identification of Analogue and Digital signals automatically, Active block diagram with Test Points	1				

7	<b>Color/Black &amp; White TV Trainer Kit</b> CCIR-B-PAL-G, 625 lines	1				
8	<b>Networking Switches</b> 24/32 port Giga bit switches unmanageable, Fast Ethernet Switch, Full Duplex Capability, Auto sensing per device, auto uplink, store and forward	2				
9	<b>LINEAR VARIABLE DIFFERENTIAL TRANSFORMER (LVDT) (experimental set up)</b> Providing measurement of mechanical displacement in the range of +/- 20 mm. An overall accuracy of +/- 2% of full scales providing digital readout. Capable for interface with data Acquisition System	2				
10	<b>STRAIN GAUGE MODULE (experimental set up)</b> Type of load cell with 10-kg capacity. An overall accuracy of +/- 2% of full scales providing digital readout, capable for interface with data Acquisition System	2				
11	<b>DISTANCE MEASUREMENT USING ULTRASONIC SENSOR (experimental set up)</b> 4-5 meter sensor range, provision of digital readout, capable for interface with data Acquisition System	1				
12	<b>TEMPERATURE MEASUREMENT USING THERMISTOR (experimental set up)</b> Temperature range of 0-100 degree centigrade, Provision of digital readout, capable for interface with data Acquisition System	2				
13	<b>TEMPERATURE MEASUREMENT USING RTD (experimental set up)</b> Temperature range of 0-100 degree centigrade. Provision of digital readout, capable for interface with data Acquisition System.	2				
14	<b>TEMPERATURE MEASUREMENT USING THERMOCOUPLE(experimental set up)</b> Temperature range of 0-100 degree centigrade, provision of digital readout, capable for interface with data Acquisition System	2				
15	<b>STUDY OF INDUCTIVE PICK UP (experimental set up)</b> Least count of 10 microns, provision of digital readout, capable for interface with data Acquisition System	1				
16	<b>ROTARY ENCODER FOR SPEED AND ANGLE MEASUREMENT (experimental set up)</b> Microcontroller based system for angle and speed measurement. LCD Display interface.	1				
17	<b>Electronics System Trainer Board</b> Bread-Board with Easy connectivity, Built in Function Generator, Output Waveform: Sine, Triangle & Square / TTL Output Frequency: 1 Hz to 200KHz in 6 ranges, with amplitude & frequency control pots. O/P Voltage 20V p-p max, Input Data Switches and output LED status indicators for High/Low indication (15+1No.) LED BAR graph with 10 LED indicator to display 0-2.5V or 0-4V input On board DPM is provided with mode selection. DC volt/current: 200mA/20V.	10				

18	<b>Signal Generator</b> 0.1Hz to 2MHz sine, square, triangular waveform. Separate TTL output terminal. Output should be protected against short circuit. Adjustable DC shift in the output. Adjustable duty cycle between 10% to 90%, With accessories necessary (probes, cables, manuals etc)	5				
19	<b>L-C-R-Q meter</b> 0.05 % basic accuracy (SR720), 0.2 % basic accuracy (SR715), 5-digit display of L, C, R & Q or D. Test frequencies up to 100 kHz, up to 20 measurements per second, ext. capacitor bias up to 40 V. RS-232, GPIB & handler interfaces	1				
	<b>Items proposed under ME research Fund</b>					
20	<b>NETSIM – RESEARCH Version 7</b> <b>Following components 5 user</b> <ul style="list-style-type: none"> <li>• <b>Inter-Networks</b> Fast &amp; Gigabit Ethernet, Wireless LAN 802.11 a / b / g, IP Routing RIP, OSPF, TCP, UDP</li> <li>• <b>Advanced Wireless Networks</b> Wi-Max, MANET</li> <li>• <b>Cellular Networks</b> GSM, CDMA</li> <li>• <b>Sensor Networks</b> Wireless Sensor Network, Zigbee With Protocol Primitives C Source Code Library</li> </ul>	1				
	<b>Items proposed under RPS (8023/RID/RPS/117/2011-12,728)</b>					
21	<b>All in one Printer Canon image CLASS MF3010 or equivalent</b> Copy Type Monochrome Laser ;Copy Speed Up to 18cpm / 19cpm (A4 / LTR); Copy Resolution; Speed priority mode: 600 x 400dpi; Resolution priority mode: 600 x 600dpi ;Halftones 256 levels; Warm-up Time (From Power On) 10 secs or less ;Recovery Time (From Sleep Mode) 2 secs or less (Copy) ;0.3 secs or less (Print); First Copy Time (FCOT) 12.0 / 11.8 secs (A4 / LTR); Paper Source(s) 150-sheet cassette ;Paper Weight 60 to 163g/m; (cassette); Paper Output 100 sheets (face down); Zoom 50 - 200% in 10% ; increments; Copy Size Platen: Up to A4 / LTR Copy Features ; 2 on 1, ID Card Copy; Copy Memory 64MB (Shared); Printing Type; Monochrome Laser 2 Print Speed Up to 18ppm / 19ppm (A4 / LTR), print Language UFR II LT ;Print Resolution Up to 600 x 600dpi; 1200dpi (equivalent) x 600dpi, Print Memory 64MB (Shared), scan Type CIS ,Scan Resolution Optical: Up to 600 x 600dpi, Driver Enhanced: 9600 x 9600dpi, Color Depth 24-bit ;Document Size Platen: Up to A4, Compatibility TWAIN, WIA; Output File Format Win: Hi-Compression PDF, Searchable PDF, PDF, Pull Scan Yes, USB ,JPEG, TIFF, BMP Mac: PDF, JPEG, TIFF, BMP, PNG	1				
22	<b>XBee Pro Module - ZB Series 2 - 63mW with Wire Antenna</b> XBP24BZ7WIT-004, TX Peak Current: 205mA, RX Current: 47 mA (@3.3 V), Power-down Current: < 3.5 μA, Indoor/Urban: up to 300 ft (90 m), Outdoor line-of-sight: up to 2 miles (3200 m), Transmit Power: 63mW (18dBm), Receiver Sensitivity: -102 dBm, Dimensions: 24mm x 33mm x 9mm (0.94in x 1.3in x 0.3in), 3.91g ( 0.14oz)	20				

23	<b>Office Storewell</b> Size 78"×36"×18"; 18 gauge; with 5 compartment	2			
<b>Items proposed under RPS (20/AICTE/RIFD/RPS(POLICY-II)34/2012-13)</b>					
24	<b>DELL™ Laptop LATITUDE™ - E6220 or equivalent</b> Intel® Core™ i7-2640M (2.8GHz, 4M cache) with Turbo Boost Technology 4GB (2 X 2GB ) DDR3 @1333 MHz SDRAM Memory, 500GB @7200 RPM 3.5" SATA Hard Drive, External 8X DVD+/- RW Drive, Intel® QM 67 Chipset Mother Board, Intel®HD 3000 Graphics, 10/100/1000 BASE-T Giga Ethernet, Internal DELL™ Keyboard with Touchpad (English) 12.5" HD (1366x768) Anti-Glare Backlight LED Display, Integrated HD (1MP) Webcam with Digital Microphone, Microsoft® Windows®7 Professional 32 bit (English), 1- HDMI/ Display port, 1- VGA, 1- RJ-45, 1- headphone/ Microphone, out; 2- USB 2.0, DELL™ Wireless(TM) 1501 (802.11 b/g/n) Half Mini Card, Wireless 375 Bluetooth Module, DELL™ Professional 14" Business Case DELL™6-cell (60Wh) Primary Battery , (1 Yr Warranty on Battery)  Dell Backup and Recovery Manager (DBRM) V1.3 for Windows 7	2			
<b>Items proposed under MODROB embedded (12/AICTE/RIFD/MOD(Policy-2)-138/2012-13)</b>					
25	<b>In circuit Emulator For 8051 MCU family kit with ICE with built- in processor</b> Shall support nearly all 8051 parts including: 8031/ 80C31, 87XXX, 89XXX, 97XXX with High level language support for C compilers. Shall runs under Windows XP, Win7 and NT 2000 and other new OS., Supporting Intel HEX and OMF file format , Connected to PC via printer port or USB port	01			
26	<b>Programmer for 8051 MCU family</b> Suitable for programming 8051 based MCUs and large number of EPROM / EEPROMs, SPROMs, PLDs, SRAM / DRAM's, Universal Pin Drivers, 48 Pin ZIF socket with universal 40pin-drivers, Support Windows OS, WIN98, SP2/NT/2000/ME/XP/ Vista/Win7 32 bit/ Win7 64 bit OS	04			
27	<b>Keil Compiler for 8051 and/or ARM MCU Family Latest version</b> Assembly Language and C Compiler for 8051 MCU family with Graphical User Interface, comprising of IDE, C Compiler, Assembler and Linker for 8031/51 family of micro-controllers. Shall include Simulator, simulation of on-chip peripherals like serial port, timer, etc., provision of single stepping, multiple break points support, continuous execution and Total machine cycles along with time calculations. Support Windows OS, WIN98, SP2/NT/ 2000/ME/XP/ Vista/Win7 32 bit/ Win7 64 bit Os.	01			
28	<b>8051 Development Kits for training</b> P89V51RD2 based Embedded Controller Board. All port pins available on port wise connectors. Power Adapter / Power supply included. RS232 and USB port connection and Serial communication cable to connect to PC or suitable arrangement made. Shall include all necessary cables and connectors in adequate numbers, Must be provided in separated casing.	30			

29	<p><b>Interfacing Kits/cards for the above Dev. Board</b></p> <ul style="list-style-type: none"> <li>a) ADC Interface with On board analog input</li> <li>b) DAC Interface Pins provided to connect to CRO/DSO</li> <li>c) I2C &amp; SPI Interface</li> <li>d) LCD Keyboard Interface: 16x2 alphanumeric LCD interface board with 4x4 matrix keyboard.</li> <li>e) 7 Segment Interface: 7segment LED interface board with 4x4 Matrix keyboard.</li> <li>f) LED &amp; Switches Interface: 8 Keys and 8 LEDs provided for digital Input/ Output</li> <li>g) Stepper Motor Interface: Card for interfacing the stepper motor with Separate Stepper motor provided</li> <li>h) Traffic Light Interface</li> <li>i) Relay Interface Card</li> <li>j) DC Motor Interface Card</li> </ul> <p>Above Interfacing Kits/cards must be provided in separated casing or on board.</p>	05				
30	<p><b>Integrated MCU Development kit</b></p> <p>8051 architecture using 89V51RD2 with following included on board like 128x64 Monochrome Graphics SD card interface, Serial Port, ADC, 320x240 graphics LCD, On board Temperature, DAC 8 LEDs to display Digital Output, 8 Pulse Button switches to give digital input, 16x2 Alpha numeric LCD,4X4 Matrix keyboard, Stepper Motor interface with on board Motor etc.</p> <p>You may also quote PLC and ARM or any more MCUs modules for this above kit separately</p>	03				

**6. MECHANICAL DEPARTMENT**

Item No.	Particulars	Approx. Qty	Basic Unit Price	VAT + Other +LBT	Total Amount Rs.	EMD at 3% on Total amount
		<b>q</b>	<b>a</b>	<b>b</b>	<b>(a+b)*q</b>	
1	Modeling and Simulation Software for Manufacturing Processes such as Forming, Casting, Rolling, Forging, Press Work and Machining etc. (1 or 2 user license) A- Academic version B- Professional version Note: Quote for Academic version and Professional version separately with EMD for higher quote version.	1 No.				
2	3 Phase Stabilizer for CNC Lab of 10 KVA Capacity	1 No.				
3	Induction Heating System as per following specifications (One year Standard Warranty and annual maintenance charges for next two years) Specifications: <ul style="list-style-type: none"> <li>▪ High frequency induction heating system to heat work surface (upto 2 mm depth) mounted on CNC lathe machine chuck</li> <li>▪ Workpiece material and size : Al/SiCp metal matrix composites, Inconel of 20 to 30 mm diameter and 100 mm length</li> <li>▪ Temperature range : 60 to 450°C</li> <li>▪ With Cooling Tower and Reputed Make Pump</li> </ul>	1 No.				
4	EDM oil for EDM Machine having flash point more than 75°C	400 lit				



Item No.	Particulars	Approx. Qty	Basic Unit Price	VAT + Other +LBT	Total Amount Rs.	EMD at 3% on Total amount																												
		<b>q</b>	<b>a</b>	<b>b</b>	<b>(a+b)*q</b>																													
5	<p>Machine Tool: EDM Machine with CNC Programmable software and standard accessories with one year standard warranty            Technical Specifications:</p> <table border="1"> <tr> <td>Work tank internal dimensions (<math>\pm 5\%</math>) (W x D x H)</td> <td>800 x 500 x 350 mm</td> </tr> <tr> <td>Work table dimensions (<math>\pm 5\%</math>)</td> <td>550 x 350 mm</td> </tr> <tr> <td>Traverse (X,Y, Z) (<math>\pm 5\%</math>)</td> <td>300, 200, 250 mm</td> </tr> <tr> <td>Maximum job weight</td> <td>250 to 300 kg</td> </tr> <tr> <td>Maximum electrode weight (with accessories)</td> <td>50 to 70 kg</td> </tr> <tr> <td>Maximum job height</td> <td>200 to 250 mm</td> </tr> <tr> <td colspan="2"><b>Dielectric unit</b></td> </tr> <tr> <td>Dielectric capacity</td> <td>300 to 400 Liters</td> </tr> <tr> <td>Filtration system</td> <td>10 <math>\mu</math> paper cartridge 2 nos.</td> </tr> <tr> <td colspan="2"><b>Pulse generator</b></td> </tr> <tr> <td>Pulse generator type</td> <td>MOSFET</td> </tr> <tr> <td>Maximum working current</td> <td>40 to 50 A</td> </tr> <tr> <td>Power supply</td> <td>3 phase, 415 V* AC, 50 Hz</td> </tr> <tr> <td>Connected load</td> <td>6 kVA</td> </tr> </table> <p>Note: Mention additional charges for next 2 years warranty. Annual maintenance service charges for next 2 years</p>	Work tank internal dimensions ( $\pm 5\%$ ) (W x D x H)	800 x 500 x 350 mm	Work table dimensions ( $\pm 5\%$ )	550 x 350 mm	Traverse (X,Y, Z) ( $\pm 5\%$ )	300, 200, 250 mm	Maximum job weight	250 to 300 kg	Maximum electrode weight (with accessories)	50 to 70 kg	Maximum job height	200 to 250 mm	<b>Dielectric unit</b>		Dielectric capacity	300 to 400 Liters	Filtration system	10 $\mu$ paper cartridge 2 nos.	<b>Pulse generator</b>		Pulse generator type	MOSFET	Maximum working current	40 to 50 A	Power supply	3 phase, 415 V* AC, 50 Hz	Connected load	6 kVA	1 No.				
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Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + Other +LBT b	Total Amount Rs. (a+b)*q	EMD at 3% on Total amount
6	LCD PROJECTOR XGA resolution, 3000 Lumens, Aspect ratio 4:3, Contrast 3000:1,Lamp life 5000 Hs, RGB liquid crystal shuttle projection, <u>USB support</u> , Warranty – 2 Years – Epson X-14 or equivalent					
7	<p><b>Laptop for CAE using ABAQUS</b></p> <p><b>Processor:</b> 4th Generation Intel® Core™ i7 processor  <b>Operating System:</b> Windows® 7 Professional 64 bit  <b>Memory:</b> 16GB DDR3L SDRAM 1600MHz;  <b>Graphics Card:</b> Dedicated graphics card of 2GB, preferably NVIDIA make  <b>Display:</b> 15.6” HD (1366x768) Anti-Glare LED  <b>Hard Drive:</b> 1TB Solid State Hybrid drive  <b>Optical Drive:</b> DVD-ROM, DVD+RW  <b>Connectivity:</b> 10/100/1000 Gigabit Ethernet  <b>Wireless LAN and WiMAX Options:</b>            Intel® Centrino® Advanced-N 6235 + Bluetooth® 4.0, Intel® Centrino® Ultimate-N 6300 Wireless 1506 (802.11g/n 1x1)  <b>Mobile Broadband &amp; GPS Options:</b> Wireless™ 5570 HSPA+ (42Mbps) Mini Card  <b>Multimedia:</b> High Quality Speakers, stereo global headset jack, integrated noise reducing array microphones Integrated HD video webcam  <b>Ports, Slots &amp; Chassis:</b> Stereo global headset jack, Memory card reader, Docking connector, VGA, HDMI, USB3.0 (4), Network connector (RJ-45), SIM card connector, 1 full (WWAN) and two half (WLAN, DDPE<sup>6</sup>) card slots  <b>Input:</b> Dual pointing keyboard: standard or backlit, Multi-touch Touchpad  <b>Power:</b> 6/9-cell (60Wh/97Wh) Lithium Ion battery with Express Charge</p>					

Sr. No.	Item with specifications	Qty q	Basic Unit Price a	VAT + Octroi / LBT+other b	Total Amount (a+b)*q	EMD at 3% on Total amount
8	<b>Abaqus 6.13 with CATIA interface</b> Abaqus 6.13 Software or its latest release - Research edition for unlimited nodes including SIMULIA Abaqus/CAE CATIA Associative Interface (including one year upgrades)	01 Nos.				
9	<b>Laptop for Computer Aided Analysis:</b> 1. Make of Laptop – DELL 2. Processor - Core i7 (fourth generation) 3. OS - <b>Windows 7 (64 bit)</b> 4. Memory - 16 GB DDR3 RAM 5. Dedicated Graphics card – 2GB NVIDIA make (Model must be Quadro 6000 or Quadro K1000M or Tesla C2050 or C2070 or GeForce GT 720M/740M) 6. Integrated 10/100/1000 Gigabit Ethernet 7. Multimedia and input devices – Standard available 8. Optical Drive DVD-ROM, DVD+/-RW 7. <b>Ports:</b> Standard available 8. Battery - 6 cell Lithium Ion 9. External Key board and mouse 10. Cooling Pad for laptop	01 Nos.				
10	<b><u>IMAGE ANALYSER</u></b>  <b>Image Analysis Hardware:</b> Specification for high resolution Digital Camera are as follows: Single chip high resolution scientific grade, digital camera with interface cable and standard software for connecting to a PC with image resolution of minimum 5 megapixels with provision for at least 4 different selectable resolutions. It should have the binning function and the ability to preview display images to be acquired in two different sizes. It can able to measure: Average, spot and variable point metering modes for proper exposure calculations (measuring area should be capable	1 Nos				

	<p>to be moved freely in the image). Image format: BMP, TIFF, JPEG, PICT, AVI.</p> <p>Exposure time: Minimum (80 <math>\mu</math>s) and maximum (3 seconds or higher). Image transfer range: Maximum 3 sec at maximum resolution. Image capture time must be less than 3 sec. Frame transfer rate: Minimum 20 frames/ sec or better (at image size 1560*1024). Any standard PC interface for power supply and data transfer.</p> <p>Printer: HP or equivalent Latest high-resolution Colour/ BW Scan, BW photocopier, Laser Printer</p>					
11	<p><b><u>METALLURGICAL MICROSCOPE</u></b></p> <p><b>Specification for Trinocular Inverted Metallurgical Microscope (with LCD Screen at least 9 inch)</b></p> <ol style="list-style-type: none"> <li>1) Quintuple/ Quadruple revolving nose piece</li> <li>2) Trinocular head suitable for Image Analysis / Microphotography</li> <li>3) Low voltage 6V, 30W halogen bulb with built in transformer.</li> <li>4) Objectives: Plane achromatic 10x, 20x, 40x, 100x DRY</li> <li>5) 5x, 10x, 15x, 20x W.F. wide field Eyepieces for clear high 2000X times magnified image.</li> <li>6) Monochrome filters for observation</li> <li>7) Co-axial Coarse and fine focusing movements</li> <li>8) Field and aperture diaphragms for best possible illumination</li> <li>9) Co-axial stage movement</li> </ol>	1 Nos				
12	<p><b><u>AUTO-POLISHING STATION</u></b></p> <p><b>Technical Data:</b></p> <p>Single Disc Polishing Machine should consists of 8" Aluminum disc over which polishing paper or cloth can be pasted, Motor should be mounted on a common M.S. Frame, Disc operate in basin of Stainless steel which collects the abrasive wastes and removes them out of the machine through outlet, The disc should be provided with splashguard and cover for protection when not in use, A swan neck tap which can be swung on the disc for controlled addition of water during grinding and polishing or swung on to a wash basin for washing the specimen during intermediate examinations (360 degree swivel), All controls are provided on the front for ease of operation, minimum 1/2 HP DC single phase motor with continuously variable speed from 400 rpm to 1440 rpm.</p>	1 Nos				

13	<p><b><u>COMPUTER INTERFACE WITH SUITABLE SOFTWARE</u></b></p> <p><b>Specification Sheet of Software Analysis Modules (suitable for all above equipments)</b></p> <ol style="list-style-type: none"> <li>1. Grain Size Analysis based on ASTM E1382-91 / ASTM E112 (Intercept Methods)</li> <li>2. Inclusion Rating in Steels based on ASTM E45 (METHOD A) / E1122</li> <li>3. Inclusion Rating in Steels based on DIN K4</li> <li>4. Inclusion Rating in Steels based on JIS G055</li> <li>5. Percentage, volume and area fraction and distribution of Phase(s) as per ASTM E 562.</li> <li>6. Nodularity or Sphericity of nodules in C.I. as per ASTM E 247, Shape, distribution and nodule count</li> <li>7. Measurement of Banding with avg., max, min bandwidth and length as per ASTM E 1268</li> <li>8. Percentage of Phase versus distance from the edge in heat treated products.</li> <li>9. Decarb Depth, Plating thickness (multiple coatings).</li> <li>10. Automatic calculation of Micro-Vickers hardness in different scales and case depth from images of indentations.</li> <li>11. Macro Photography of Macro Etched specimens for Failure Analysis</li> <li>12. Graphite Flake length, width, distribution and percentage as per ASTM A-247-67 (Re approved 1990)</li> <li>13. Additionally with above features include independently “Casting Simulation Software” (AUTOCAST or similar) at least for single user.</li> </ol> <p>- The above “Image analyser, Metallurgical microscope, Auto-polishing station, Computer interface with suitable software” equipments include all relevant accessories (stand, dust cover, cable, power supply, stabilizer etc.), software &amp; drivers (microscope, digital camera, image analysis software, polishing station etc.) together must be supplied from the same vendor (supplier) as a single unit and should be compatible with each system of the Image Analysis System with <i>computing</i> facility and legal Microsoft operating system. An optimum optical compatibility must be ensured for good performance to carry out the testing specified work.</p> <p>Compatibility, Installation &amp; Training:</p>	1 Nos.				
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	<p>(1) Software must have the capability to have modules added for future use, for example to examine weld structures etc.</p> <p>(2) All adapters and tools for installation on metallurgical microscope</p> <p>(3) Metallurgical Microscope Microstructure Specimen Set (at least 25 Type of Sample)</p> <p>(4) Pre-installation inspection should be arranged at supplier's end for at least 2 persons by the party. For that visit all the related expenses (TA, DA as applicable etc.) are to be barred by the party.</p> <p>(5) Commissioning/ Installation in all respect at WCE lab and 2-3 days application oriented training at WCE should be done by the Party.</p> <p>(6) No deviation is accepted from above mentioned specifications.</p> <p>(7) In case of dispute, persons appointed by WCE will act as Conciliator.</p> <p>(8) Payment will be made after issue of completion certificate by the WCE engineer to the supplier and subsequent bill is submitted by the contractor.</p> <p>(9) Quoted costs should be inclusive of all the taxes as applicable for Sangli municipal corporation (VAT, LBT etc.)</p>				
14	<p><b>Servo Computerized Universal Testing Machine Capacity 400kN (40tons)</b>  With all the standard accessories  Load Resolution 1/10000 count  Cross head disp. resolution : 0.1 mm Micro processor based control unit with RS-232 Computer interface  Windows based software with real time graph on PC.</p> <p><b>Strain Rate:</b>  Minimum 1.5 mm/ min  Maximum: 150mm/ min</p> <p><b>Loading Rate:</b>  Minimum 15kN/min  Maximum 800kN/min</p> <p><b>Electronic Extensometer package for Proof Stress evaluation</b>  A) Electronic Strain Gauge type extensometer with following specs.  Gauge Length: 25 &amp; 50 mm      Maximum Extension: 2mm  Resolution : 1 micron      Max Diameter supported: 40 mm  B) Hardware interface card for interfacing with control panel  C) Windows XP based software plotting stress vs Strain &amp; proof stress  Note: For proof stress values and graph use of computer is a must.</p>	1 no			

Measuring capacity(KN)	Measuring range(kN)	Least count (kN)	Load range in kN with accuracy of measurement $\pm 1\%$	Resolution of piston movement in mm	Overall dimensions approximately in mm	Weight approximately in Kg					
400	0-400	0.02	8 to 400	0.01	2100 x 850 x2100	2000					
<p><b>Standard Accessories:</b>  Tensile test jaws: For round specimen from 5mm to 40mm  For flat specimen : from 5mm to 65mm width of specimen  Compression test jaws, Shear Test jaws</p>											
15	<p><b>Impact Testing Machine:</b>  Suitable for Charpy &amp; Izod Impact tests on various materials.  Works on Pendulum principle.  Rigid designs of machine frame &amp; other parts assure minimum energy absorption during fracture.  Direct indication of Impact energy absorbed by specimen on large dial.  Safety guard for the operator.  Initial potential energy for Charpy is 300 Joules &amp; for Izod is 170 Joules with a L.C. of 2 Joules.  Pendulum drop angle for Charpy is 140° &amp; for Izod is 90°.  Accuracy should conform to IS:3766-2003, IS:1598-1977, IS:1757-1999, IS:1499-2003, BS:131-Part-I,II,III,IV &amp; BS EN-10045-1993 (for Charpy).  Accessories: gauges, tongs, sub zero temperature bath</p>						01 Nos.				

**7. Computer Science and Engg. Department:  
P.G.Academics Fund (CSE) – Other expenses / Refurbishment**

Item No.	Particulars	Approx. Quantity	Basic Unit Price	VAT + LBT + Other	Total Amount	EMD at 3% on Total amount
<b>Networking of renovated Server / Linux Lab</b>		<b>Q</b>	<b>a</b>	<b>b</b>	<b>(a+b)*q</b>	
1	<b>LAN Cable</b> D-Link or Equivalent CAT6 UTP23AWG Solid	1500 mtr				
2	<b>Keystone Jack</b> D-Link or Equivalent JackCat 6 Keystone UTP with Collapsible Shutter- White	60 Nos.				
3	<b>Face Plate</b> D-Link or Equivalent (Keystone Jack, square)	60 Nos.				
4	<b>TR BOX</b> D-Link or Equivalent(Surface Box)	60 Nos.				
5	<b>Patch Cord (3M)</b> D-Link or Equivalent CAT6 UTP 24AWG PATCH CORD:3M, Plug 30U' Snagless	60 Nos.				
6	<b>Patch Cord (1M)</b> D-Link or Equivalent CAT6 UTP 24AWG patch cord:2M, Plug 30U' Snagless	70 Nos.				
7	<b>Patch Panel</b> D-Link or Equivalent, Cat 6 UTP Keystone Type- 24 Port-Fully Loaded	3 Nos.				
8	<b>Switch</b> D-Link or Equivalent 24-Port 10/100/1000Base-T Unmanaged Standalone Gigabit Switch (Green Ethernet)	3 Nos.				
9	<b>Networking Racks</b> 6U Standard size fullloaded or equivalent	1 No.				
10	<b>Networking Racks</b> 9U Standard size full loaded or equivalent	2 No.				
11	<b>LAN Cable Duct</b> Material: made from hard PVC, low halogen material, rigidity PVC, environment protecting, no pollution, no lead, no venomous matter, Size: 25mm x 25mm or equivalent	180 Ft.				



<b>12</b>	<b>Access Point</b> as per following specification or equivalent	<b>2 No.</b>				
	Wi-Fi Interface	802.11a/b/g/n 2.4/5.0 GHz				
	LAN Interface	10/100/1000 Gigabit Ethernet				
	Antenna	2x2 MIMO embedded antenna with 4 external antenna connectors				
	Power Method	external power adapter				
	Data Transfer	2.4 to 2.497 GHz and 4.9 to 5.85 GHz				
	General Specifications	300 Mbps				
	Wireless Security	WEP, Dynamic WEP, WPA Personal/ Enterprise, WPA2 Personal/ Enterprise				
Enclosure Type	PC or plenum-rated chassis					

**Computer Science and Engg Department: AICTE-RPS**

Item No.	Particulars	Approx. Quantity	Basic Unit Price	VAT + LBT	Service Tax, if any	Total Amount	EMD at 3% on Total amount
		Q	A	b	c	(a+b+c)*q	
<b>1</b>	<b>High end workstation IBM/ DELL / HP or equivalent MNC brand</b> 2 Intel Xeon Processor (6 Cores per processor), 64GB DDR3 RAM, 2 x 2 TB SATA Hard Drive, 16x DVD+/-RW Drive, NVIDIA Graphics Quadro K2000 2GB, License Microsoft Windows 8.1 or above, 29" LED monitor with all other standard configuration.  3 years onsite warranty.	<b>One to Three</b>					
<b>2</b>	<b>On Line UPS</b> Two KVA full load, On Line UPS with 1 Hr backup or equivalent  3 years onsite warranty for UPS & battery	<b>One or Two</b>					
<b>3</b>	<b>Android Development Kit</b> <b>Samsung Galaxy Note 3 or equivalent</b> With following minimum specifications Display 4.8 inch HD Super AMOLED min (1280x720) display Network/Bearer and Wireless Connectivity Memory 16/ 32GB User memory)	<b>One</b>					

	<p>Services and Applications  Direct call, Smart alert, Tap to top,  Camera quick access  S Voice  OS .Android 4.0 (Ice Cream Sandwich)  Connectivity .WiFi a/b/g/n,, .GPS, .Bluetooth@ 4.0(LE)  Audio and Video  Support for all types Playback: Full HD (1080p)  Camera  8 Mega pixel Auto Focus camera with  Google Services enabled or equivalent  3 years onsite warranty.</p>						
4	<p><b>GPS Device</b>  Apple I5 IPAD 10" with SIM facility  MD522/525HN/A or equivalent  3 years onsite warranty</p>	One					
5	<p><b>Software</b>  Verifinger SDK: Std Edition (V6.7) or equivalent</p>	One					
6	<p><b>Interactive panel 19" or above to display computer's interactive handwritten text on wider screen/projector</b></p>	One or two					
7	<p><b>Eye gaze tracker device/camera</b></p>	One					
8	<p><b>Brainwave / Neuro Headset kits</b></p>	One or two					
9	<p><b>3-D Display device 38"/42" or above  Panasonic, Samsung, LG or equivalent</b></p>	One					

**Computer Science and Engg Department: MODROB - TCS**

Item No.	Particulars	Approx. Quantity	Basic Unit Price	VAT + LBT	Service Tax, if any	Total Amount	EMD at 3% on Total amount
		Q	a	b	c	(a+b+c)*q	
1	<b>Thin-Clients: IBM / DELL / HP or Equivalent make</b> Processor VIA EDEN 1 GHz or above, 4GB Flash / 2GB RAM DDR 2, Graphics VIA VX 855, 10/100/1000 Base-T Gigabit Ethernet, USB Keyboard & Optical Mouse, 18.5" LED Monitor, Microsoft Windows 7 STD Embedded OS License, VMware View Client, Citrix Receiver Client, Internet Explorer Browser Warranty : 3 Years	55 nodes					
2	<b>Desktop OS Microsoft Windows OS ver. 8.1 or above</b>	55					
3	<b>Software</b> DPlot V.2.3.4.4 - graph software for scientists and engineers or equivalent	1					
4	<b>Software</b> Mxgraph V.2.3.0.4: mxGraph modern or equivalent	1					
5	<b>Software</b> ACL2: 3 clause BSD (V 6.2) or equivalent	1					
6	<b>Software</b> Prover 9/Mace 4 –GPL V.0 5 or equivalent	1					
7	<b>Software</b> IsaPlanner V.2: GPL or equivalent	1					

**8.TELEPHONES/CFF**

<b>Item No.</b>	<b>Particulars</b>	<b>Qty q</b>	<b>Basic Unit Price a</b>	<b>VAT + other+Octroi / LBT b*</b>	<b>Total Amount (a+b)*q</b>	<b>EMD at 3% on Total amount</b>
	<b>Items proposed for Telecom Networking</b>					
<b>1</b>	Supply of 10 pair Jelly Filled Telephone Cable, 0.4 mm (Finolex/ Usha Martin or equivalent make)	100 Mtr Approx.				
<b>2</b>	Supply of 20 pair Jelly Filled Telephone Cable, 0.4 mm (Finolex/ Usha Martin or equivalent make)	250 Mtr Approx.				
<b>3</b>	Supply of 50 pair Jelly Filled Telephone Cable, 0.4 mm (Finolex/ Usha Martin or equivalent make)	450 Mtr Approx.				
<b>4</b>	Laying of 10 pair JFTC Cable in underground Pipe (Usha Martin or equivalent make )	100 Mtr Approx.				
<b>5</b>	Laying of 20 pair JFTC Cable in underground Pipe (Usha Martin or equivalent make)	250 Mtr Approx.				
<b>6</b>	Laying of 50 pair JFTC Cable in underground Pipe (Usha Martin or equivalent make)	450 Mtr Approx.				
<b>7</b>	Supply, fixing and termination of 20 pair MDF	4 No.s Approx.				
<b>8</b>	Supply, fixing and termination of 50 pair MDF	4 No.s Approx.				
<b>9</b>	Supply, fixing and termination of 100 pair MDF	1 No.s Approx.				

**9.ALL DEPARTMENTS**

Item No.	Particulars	Qty q	Basic Unit Price a	VAT + other+Octroi / LBT b*	Total Amount (a+b)*q	EMD at 3% on Total amount
1	<p>Desktop Computer AMD A10</p> <p>CPU : AMD A10 5700, 3.4 GHz, 4 MB Cache,4 Cores</p> <p>Chipset :A series chip or higher</p> <p>Bus Architecture : 4 PCI</p> <p>Memory : 4 GB 1333 MHz DDR3 RAM with 16 GB Expandability</p> <p>Hard Disk Drive : 500 GB 7200 rpm or higher</p> <p>Keyboard : 104 keys</p> <p>Cabinet : Small form factor,</p> <p>Mouse : Optical with USB interface,</p> <p>Bays : 3 Nos. or above</p> <p>Ports : 6 USB Ports including 2 USB 3.0 Ports</p> <p>DVD ROM Drive : 8X or better</p> <p>Networking facility : 10/100/1000 on board integrated Network Port</p> <p>Operating System : Windows 8 Professional –without monitor</p> <p>(Civil-20, Electrical – 50, Electronics-30, CSE-55)</p>	155				
2	<p><b>Desktop Monitor</b></p> <p>18.5” Widescreen Monitor with LED backlight</p>	155 Aprox.				

## 10. Central Computing Facility

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + LBT b	Total Amount (a+b)*q	EMD at 3% on Total amount
1	DreamSpark Premium 3 years renewal	1				
2	<b>Supply &amp; Installation of UPS Batteries</b> Exide/Quanta/Autobat Make 12V-40AH Tubular Batteries with 5years warranty With Buyback of Existing 1. 2 Volt 100 Ah HBL Knife batteries –Approx. qty (150) 2. Existing 12V-40AH Exide make tubular batteries- Approx. qty(26)	60				
3	Cyberoam Upgrade for 1/3 year subscription with 24*7 support along with hardware box maintenance support. Upgradation includes 1. Web and application filter 2. Intrusion prevention system (IPS) 3. Gateway Antivirus 4. Gateway Antispam 5. 24 *7 support 6. All firmware updates & bug fixing for Product 500ia code 05-TVSP-RNL-05000IAF-03 (Please quote separately for one and three year subscription)					
4	Software Development/Up-gradation for existing MIS software for following modules  1. <b>Student Registration Module:</b> Course Parameter, Student Registration, Faculty(branches) parameter, Document Management, Course Part Parameter, Various Reports with various parameters, Students data entry and some additional program as per user need. 2. <b>Fees module:</b> Fee types parameter, Fees reconciliation, Fee type course mapping, Yearly fees definition, fees collection, some extra programs					

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + LBT b	Total Amount (a+b) * q	EMD at 3% on Total amount
	<p>3. <b>Scholarship Module:</b> Scholarships Master, scholarship posting, scholarships and category mapping, scholarship student mapping, various reports (5 nos.) , some extra programs</p> <p>4. <b>Human Resource</b> Management Module: Employee Master, Qualification parameter, some extra programs as per govt. service book management.</p> <p>5. Payroll and ITAX: Form 16A and Form 24 Q</p> <p>6. User and authorities Management: User entry and linking with employees, password setting, authority setting etc.</p> <ul style="list-style-type: none"> <li>• The system will be totally web based and run from any connected terminal.</li> <li>• The training for EDP staff and users is mandatory</li> <li>• The source code of the application will be given to the WCE, which can be used further by WCE solely for their use and not for any commercial purpose</li> </ul> <p>The bidder/vendor must fulfill following conditions:</p> <ul style="list-style-type: none"> <li>• Establishment in this business for more than 10 years</li> <li>• Sound in balance sheet, over 1.5 to 2 Crore turnover for last 3 years</li> <li>• Manpower strength over 40 with atleast 5 people of greater than 5 years stay with company</li> <li>• More than 30 customers in client list at least in Maharashtra</li> <li>• Has worked for Educational institutes/University/Engineering colleges</li> <li>• Service center should be in Sangli on permanent basis.</li> </ul> <p><b>Technical background requirement</b></p> <ul style="list-style-type: none"> <li>• Expert in oracle database usage and administration on linux, windows operating system</li> <li>• Expertise in Linux and windows Operating system</li> <li>• Expertise in Java, J2EE, AJAX and web technologies</li> </ul>					

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + LBT b	Total Amount (a+b) * q	EMD at 3% on Total amount
	<ul style="list-style-type: none"> <li>• Freeware web/application servers</li> <li>• <b>Ability in hardware and networking and erecting and maintaining data centers.</b></li> <li>• Expertise in online payments like payment gateways and RTGS/NEFT gateways</li> <li>• Experience in working on other software vendors applications/using other vendors database</li> <li>• Experience in working with other software vendors in collaboration.</li> <li>• Experience in payroll management and income tax</li> <li>• Experience of having developed web based applications related to educational institutes.</li> </ul> <p><b>Institute application requirement with existing system</b></p> <ul style="list-style-type: none"> <li>• Maintaining and enhancing current application using its database and application source.</li> <li>• The vendor will have to remove bugs/problems in existing application and enhance it for further needs.</li> <li>• Vendor will have to integrate the present different applications hosted on different servers to make a institute wide MIS database to reduce duplication of data.</li> </ul>					



11. CIVIL-MPCB FELLOWSHIP FUNDS

SN	Brief Specs	Approx. Qty q	Basic Unit Price a	VAT + LBT b	Total Amount (a+b)*q	EMD at 3% on Total amount
1	Centrifuge Capacity: 16 x 15mL Display Digital Control Microprocessor Control Speed Set/Step/Display 300 to 6500rpm, ±10rpm Max. Speed 6500 rpm Feature(s) High/Low acceleration and braking Timer 1 to 99 min. plus HOLD Motor Direct-drive brushless induction Noise <57dBA	01 Each				
2	Rotary Shaker Compact Shaker with Orbital shaking mechanism compact for uniform mixing with vigorous shaking operations, Shaking speed 40 to 200 rpm with digital display, Amplitude is 20 mm, Platform size 44 x 30 cm, Power 100 w, Clockwise, anticlockwise orbital motion with programmable facility, 9 conical flasks of 1000ml. Complete with spring positioner holding plate	01				
3	Magnetic Stirrer Microcontroller based and programmable count down timer Size: 400 x 400 x 70 mm, Weight: 16 Kgs, Stirring Volume: Upto 1 Liter - 6 points or Upto 200 ml 15 points, Housing: FRP, Stirring points: 6 Nos for 1 Liter or 15 Nos. for 200 ml, Distance between points : 128mm for large vessels & 64mm for small Vessels Stirring Speed : settable from 100 to 800 rpm	01				

4	<p>Automatic kjeladahl nitrogen analyser</p> <p><b>Digestion unit:</b>  Microcontroller based digestion unit to digest 8 samples at a Time, Glass Vessel of 250 ml - 8 Nos.  Heat shield, rack for digestion vessels, Heating block : Solid Aluminum, Sample Size : 0.25 - 5 gms  Power : 230V AC, 50 Hz, 1500 watts, Temperature : 10°C above Ambient to 400° C, Sensor : PT 100,  Timer : User definable upto 99 Hrs. 59 min., Display : Graphic LCD Module with large fonts,  Keyboard : Soft touch Membrane type, Dimension : Digestion Unit 33 x 28 x 75 cms: Control unit 23 x 17.5 x 14 cms</p> <p><b>Distillation unit:</b>  Microncontroller based design, Graphical Display automatic addition, Automatic steam processing,  Adjustable steam power 10 to 100%, Automatic water addition in steam generator, Cleaning mode for  acid &amp; alkali pumps, Display for distillation audio &amp; visual indication No. of samples : 8 to 10  samples / hour, Recovery : 99.5% for 1 - 200 mg  Glass Flask capacity : 250 ml, Sample size : 0.25 - 5 gms, Power : 230V AC, 50 Hz  Wattage : 700 watt, Temperature : 120 deg. C, Dimension: 40 x 40 x 65 cms</p>	01				
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RPS-CIVIL

SN	Brief Specs	Approx. Qty q	Basic Unit Price a	VAT + LBT b	Total Amount (a+b)*q	EMD at 3% on Total amount
1	<p>Hollow Cathode Lamps for detection of</p> <ol style="list-style-type: none"> <li>1) Tin</li> <li>2) Aluminium</li> <li>3) Nickel</li> <li>4) Boron</li> <li>5) Lithium</li> <li>6) Mercury</li> </ol> <p>The lamps should be compatible for Atomic Absorption Spectrophotometer (Elico CL 243)</p>	01 Each				

12. CENTRAL COMPUTING FACILITY (Internet Services)

Sr. No.	Description of Goods/Specification	Basic Price Rs. (A)	Taxes (Service Tax / VAT + LBT 3%)(B)	Total Price (A+B)
	<p><b>Option 1:</b>Internet Bandwidth charges for 155 Mbps (Committed 1:1) , provided by ISP (BSNL/TATA/SIFY/Bharati/.....)</p> <p style="text-align: center;">Or</p> <p><b>Option 2:</b>Internet Bandwidth charges for 80 Mbps (Committed 1:1) , provided by ISP Name : _____                      +80 Mbps (Another separate link Committed 1:1) provided by ISP _____  <i>(No two ISP 's should be same for this option)</i></p>			
1	<p>* Bidders are requested to give the details below for any alternate arrangement for failure of Internet Link</p>			
	<p><u>Details of Hardware(like Router, Converters, cables, fibre, Antenna etc. if necessary) to bring the connectivity at the CCF Server Room should be mentioned here with cost details (if any)</u></p>			
	<p>Any additional features within the same basic price quoted here pl. may be mentioned below</p>			
	<p style="text-align: center;">Total Amount Required for commissioning Internet Service at our Institute (CCF) for option (1)</p> <p style="text-align: center;">Total Amount Required for commissioning Internet Service at our Institute (CCF) for option (2)</p>			

	<b>Brief Details of Service Requirements by ISP/Bidder for Internet services</b>	Tick whichever is applicable
1	Relevant Service Level Agreements for Non-Provision of Services from Internet Service Provider (ISP) is essential.	Accepted/Not Accepted
2	Number of Static IP's those could be provided (at least 16)	
3	ISP should have a NOC (Network Operations Centre) in 25 KM radius area from the Institute	Yes/No Place :
4	ISP should make backup provision for the circuit/equipment for providing basic connectivity for quoted speed.	Yes/No.
5	No limit on downloads / Uploads from ISP.	Accepted/Not Accepted
6	<b>Internet connectivity should be maintained and Total Downtime should not be more than 8 hours per month.</b>	Accepted/Not Accepted
7	The latency to the supplier's NOC must be less than 40 mSec.	Accepted/Not Accepted
8	ISP should configure the Internet server & install the required software on site to show link capacity and bandwidth used.	Accepted/Not Accepted
9	The Link must be shown to be compatible with existing Cyberoam Unified Threat Management System (UTM) RJ45 presently used by us.	Accepted/Not Accepted
10	Power backup of at least 8 hours should be available for your router at NOC.	Accepted/Not Accepted
11	If the Circuit get failed then clarification about necessary arrangement	Document attached / Not Attached

- 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.

## Service Level Agreement for Internet Bandwidth Service

Sr. No.	Requirement/	Provision to be done by Bidder
1	In case of shutdowns	Bidder will inform one day (24 HRs) in advance
2	Software to be used for Bandwidth check	MRTG(Multi Router Traffic Grapher) on server of the Client. Or both ends.
3	<b>Deduction of payment</b>	<b>Service break continuous</b> 1.Upto 30 mins = ½ day 2.From 30 mins to 4 hrs = One day count 3.From 4 Hrs to 8 Hours = TWO Days count 4.More than 8 Hours = TEN Days count 5.Less than 2 Hrs in a Month with prior intimation=Nil.

Note : Short Perpetual break in service will also be considered as continuous break and deductions claimed by Client must be accepted by Bidder and it should be deducted from the bills raised by Bidder.

Circumstances of downtime	1) No ping to Bidder server
	2 ) No sites opening at client end
	3 ) How ever particular site or operation not happening will not be termed as downtime.

The Client will pay the Quarterly rental in advance, all the SLA settlements will be done at the end of each quarter. If the service gets terminated, bidder has to return the advance payments/or extra payment received from Client. The Bidder should provide monthly report of Bandwidth provided and downtime (if any) along with Bill raised.

As and when the Internet Bandwidth rates get slashed down, the Bidder will reduce the charges proportionally and implement with immediate effect.

Seal & Signature

Seal & Signature

Bidder

Director  
For Walchand college of Engineering

*\* This is to be made on min 100 rupees stamp paper signed by parties.*

## Terms and Conditions for Internet services

1. Bidder should be certified Internet Service Provider and should have own point of presence in our corporation area. (Attach proof)
2. The Bidder should submit the documentary proof for the execution of minimum three orders for providing Internet Service. The bidder should provide credentials for satisfactory installation, commissioning, maintenance of the Internet Service supplied in last two years to the parties within 100 kms of Sangli.
3. Bidder should attach the appropriate documents about the Internet Bandwidth he has.
4. Bidder shall not **assign or sublet the contract** to any other sub-vendor.
6. **Bid Price with Clearly mentioned Taxes.**
  - a) The contract shall be for the full quantity (1:1). Corrections, if any, shall be made by crossing out, initializing, dating and re writing in words.
  - b) **All duties, taxes, cost of other fixed equipments (such as Modems,routers,towers, cables etc.) and other levies as applicable are payable by the contractor under the contract and shall be included in the total price. The LBT paid (if applicable) receipt should be on the name of Director, Walchand College of Engineering, Sangli.**
  - c) The rates quoted by the Bidder shall be fixed for the duration of the contract once the contract is made. **However, if the internet rates get slashed down, the bidder must reduce his rates proportionally with immediate effect.**
  - d) The prices should be quoted in Indian Rupees only.
  - e) The Bidder should submit deviation statement (if any)
  - f) The Bidder's Basic price for services include the training for the three staff members along with three hard/soft copies of Manuals.
  - g) The connectivity from Bidder POP to our server room should be done on underground fiber only. And atleast two spare fiber cores should be maintained for our connectivity( For redundancy).
  - h) Internet connectivity should be maintained and Total Downtime should not be more than 8 hours per month. Otherwise penalty will be charged as mentioned in SLA.
- 7 Each Bidder shall submit only one quotation.
8. Supplier should enclose his latest valid Income Tax clearance certificate.
9. **Validity of Quotation**

Quotation shall remain valid for two month after the deadline date specified for submission.
10. **Evaluation of Quotations**

The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which

  - (a) are properly signed ; and
  - (b) Conform to the terms and conditions, and specifications
  - (c) Evaluation and Comparison of bids shall be done on total price (basic price + charges like transportation, freight and insurance, training, commissioning, installation etc. + all taxes).
  - (d) **Any conditional quotation will not be accepted.**
11. **Award of contract**

The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive, satisfying all terms and conditions and competitive price.
- 12 A) Not withstanding the above, the Purchaser reserves the right to accept or reject any quotations and/or to cancel the bidding process and/or reject all quotations at any time prior to the award of contract.

B) The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.

**The commencement of service should be from 24<sup>th</sup> Mar , 2014 and billing would be from 1<sup>st</sup> Apr 2014. The penalty for delay in proportion to the amount of order 2% for 10 days, 3% for next 10 days. In case of delay, more than 20 days, order shall automatically stand cancelled.**

13. *The Bidder has to sign Service Level Agreement (SLA) on Rs.100/- stamp before executing the order.*
14. Payment will be made on the quarterly basis in advance as mentioned in SLA document.
15. In case of dispute, persons appointed by Director will act as Conciliator. All legal disputes are subject to the Jurisdiction of Sangli court only.
16. The Bidder must be able to provide the internet service minimum for one year from the date of contract order.
17. **Right to change any clause fully or partially in the terms and conditions mentioned above and right to reject any quotation without giving any reason and right to split the order between the Vendors is reserved with Director, Walchand College of Engineering, Sangli. No request for change in specification will be entertained.**
18. **Right of repeat order/extending the order period remains with the purchaser.**

Director  
Walchand College of Engg.  
Vishrambag, SANGLI 416 415  
Tel.No.:0233-2300383  
Fax No.0233-2300831

Terms & Conditions for items other than Internet services

Please note following terms and conditions before filling the tender form and return this **sheet duly signed along with company's seal.**

1. Essential additional Services to be included Installation and training on college site.  
Supplying documentation, Software Media /Software with media. (Licensed Version), Warranty for **three** years.  
Equipment for its malfunctioning, if any, must be replaced / repaired within 15 days during warranty period.
2. For any proprietary items, attach certificate from the manufacturer that the product is proprietary and also attach the valid certificate of authorized dealer/distributor/channel partner.
3. Local support for three years must be provided by the party/manufacturer.
4. The name of your principal party (if any) is to be indicated for the items, so as to enable to place the order with the principal.
5. **Usual payment terms:** 80% against successful installation, testing, training, tagging, satisfactory certification from concerned HOD and 20% after submission of Bank guarantee for three years of 10% of the total purchase order.
6. **The tender form is not transferable.**
7. Tender documents should be sealed in an envelope along with duly signed terms & condition sheet in the college office **on or before 26<sup>th</sup> February, 2014 (6:00 pm)**. Late documents will not be accepted. -
8. The cost of the TENDER document is in the form of DD of Rs.1000/-- in favour of Director, Walchand College of Engineering, Sangli. This amount is non refundable. The tender document after having downloaded from the college website, [www.walchandsangli.ac.in](http://www.walchandsangli.ac.in); is to be filled up by the bidder and the filled tender document is to be submitted along with the D.D. Document without D.D. will not be considered.
9. If the space provided in any one of the columns of the tender form is not enough, additional pages may be attached.
10. Earnest Money Deposit (EMD) is to be calculated as 3% of the offered total price of the items for a department. Separate Demand Drafts for each of the departments must be submitted along with the tender documents. Tender submissions, without Demand Drafts will not be considered. Demand Drafts must be drawn on any Nationalized Bank in favour of 'The Director, Walchand College of Engineering, Sangli' payable at Sangli. If the tender offer is not acceptable, the EMD will be refundable.
11. **The right to reject or accept any or all offers with or without modifications from any or all parties without assigning any reason is reserved with the Director, Walchand College of Engineering, Sangli.**
12. The bidder has to submit an undertaking for terms and conditions, if selected for placing the order.
13. Rates quoted should be valid at least for **One Month**.
14. The supply of materials should be done within two weeks after date of purchase order.
15. Legal matter will be restricted to Sangli jurisdiction.
16. Quantity mentioned in tender for item may vary depending on availability of fund.
17. Enough supporting documents, for example, specifications of the items, customer list, Authorization letter, Sales tax number letter, etc. must be submitted along with the tender documents.

I / We have read the above instructions carefully, and I /we abide by the instructions.

**Seal of Company**

**Authorized Signature**

**Name:**

**Date:**



**Details of EMD**

Sr. No.	Department	Total Amount		EMD		D.D. Details		
		Rs.	Ps.	Rs.	Ps.	D.D. No.	D.D. Date DD/MM/YYYY	Nationalized Bank's Name
1	CIVIL & GEN.MAINTAINANCE							
2	ELECTRICAL							
3	APPLIED MECH							
4	INFORMATION TECHNOLOGY							
5	ELECTRONICS							
6	MECHANICAL							
7	CSE							
8	TELEPHONE/CFF							
9	ALL DEPARTMENTS							
10	Central Computing Facility							
11	Civil MPCB Fellowship and RPS Civil							

- **Note: No EMD required for internet bandwidth service.**

Seal of Company

Authorized Signature  
Name:

Date:

For more details for filling up of the tender form, following respective heads of the departments may be contacted.

Sr. No.	Name of Department	Contact No.	Email Address
1	<b>MECHANICAL</b>	(0233)-2300716	<a href="mailto:hod.mechanical@walchandsangli.ac.in">hod.mechanical@walchandsangli.ac.in</a>
2	<b>CIVIL</b>	(0233)-2300230	<a href="mailto:hod.civil@walchandsangli.ac.in">hod.civil@walchandsangli.ac.in</a>
3	<b>GENRAL MAINTAIANCE</b>	(0233)-2300230	<a href="mailto:sunil.chikurde@walchandsangli.ac.in">sunil.chikurde@walchandsangli.ac.in</a>
4	<b>APPLIED MECH.</b>	(0233)-2300716	<a href="mailto:hod.apm@walchandsangli.ac.in">hod.apm@walchandsangli.ac.in</a>
5	<b>ELECTRICAL</b>	(0233)-2300933	<a href="mailto:hod.electrical@walchandsangli.ac.in">hod.electrical@walchandsangli.ac.in</a>
6	<b>ELECTRONICS</b>	(0233)-2304470	<a href="mailto:hod.electronics@walchandsangli.ac.in">hod.electronics@walchandsangli.ac.in</a>
7	<b>CHEMISTRY</b>	9423273146	<a href="mailto:milind.pendse@walchandsangli.ac.in">milind.pendse@walchandsangli.ac.in</a>
8	<b>INFORMATION TECHNOLOGY &amp; DESKTOPS &amp; MONITORS FOR ALL DEPARTMENTS &amp; INTERNET BANDWIDTH</b>	(0233)-2301910	<a href="mailto:hod.it@walchandsangli.ac.in">hod.it@walchandsangli.ac.in</a>
9	<b>CSE</b>	(0233)-2301327	<a href="mailto:hod.cse@walchandsangli.ac.in">hod.cse@walchandsangli.ac.in</a>
10	<b>TELEPHONE/CFF</b>	(0233)-2304470	<a href="mailto:deanacademics@walchandsangli.ac.in">deanacademics@walchandsangli.ac.in</a>