COST OF TENDER FORM : Rs.1000/-

WALCHAND COLLEGE OF ENGINEERING,
SANGLI
An Autonomous Institute

TENDER DOCUMENT

LAST DATE OF RECEIVING
17th January 2014 up to 3:00 pm

DATE OF OPENING THE TENDER

17th January 2014 at 3.30 pm

In Conference Hall, Main Building

INVITATION FOR TENDERS

Ref No; - WCE/CS/ Date: - 09/01/2014

To_____
_____

Dear Sir,

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

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

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

1. Two separate envelopes are to be used.
2. 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 61. 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. Pages marked as 60, 61 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**.

3. 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 for VAT and other if any (except LBT) should be clearly indicated in the column "Total Amount". LBT is to be paid at actual by the tenderer, while supplying items. The LBT receipt must be in the name of the Director, Walchand College of Engineering Sangli. 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 department specific envelopes.** If the space provided in the tender form is insufficient, additional pages may be attached appropriately.
4. Two of the separate sealed envelopes, namely, "Specification Envelope" and "Commercial Offer Envelope" must be sealed together in a "common" single envelope.
5. Each of these envelopes should be also titled, as per the case for either "**Supply of Equipments for various departments". Tenderer must also mention** their **Company name, Address, email, contact person, cell no. etc. on envelopes.**
6. **If tenderer has SSI registration, the tenderer will be exempted from paying E.M.D. The valid SSI registration documents, for this purpose, must be enclosed in "Specifications Envelope".**

7. 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

Civil Engineering Department

SN	Particulars	Qty	Basic Unit Price	VAT+LBT+Other	Total Amount
1	**Desktop Computer** Intel Core 7-2600 Processor (3.40GHz,8MB),4GB Non ECC DDR3 @1333 MHz SDRAM Memory, 1 TB @7200 RPM 3.5" SATA Hard Drive,16X DVD+/-RW Drive, Intel Q 65 Chipset Mother Board, Integrated Intel Graphics 2000,Integrated Intel 82579LM Ethernet LAN 10/100/ 1000, USB Entry Keyboard KB212B, Optical Mouse, Audio Speaker, DOS Factory Installed (English) Integrated Conexant CX20641 High definition Audio Codec, Desktop Convertible Chassis + Standard 250W SMPS, Without Monitor	20			
2	**Desktop Monitor** 18.5" Widescreen Monitor with LED backlight	20			
3	**LCD Projector** XGA resolution, 3000 Lumens, Aspect ratio 4:3, Contrast 3000:1, Lamp life 5000 Hs, RGB liquid crystal shuttle projection, **USB support ,**	2			
4	**Scanner** A4 Size Flatbed Scanner	2			
5	**Printer** Legal Mono Laser,12a Full toner, 15 ppm, 234 Mgh processor with 2 MB RAM	1			
6	**Anti-Virus** Admin Console Internet Security Std-10 users	3			
7	***Laptop** Intel Core i5-4th Generation,4 GB RAM,1TB SATA Hard Drive, DVD+/- RW Drive,10/100/1000 BASE-T Giga Ethernet, Internal Keyboard with Touchpad (English),15.6" HD (1366x768) Anti-Glare Backlight LED Display,2 GB Graphics Card, Integrated HD (1MP) Webcam with Digital Microphone	6			
8	***Printer** 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.	1			

SN	Brief Specs	Approx. quantity	Basic Unit Price	VAT+LBT+Other	Total Amount
1	**Anti-termite treatment** • Anti-termite treatment for book bank issue section of library and other places in college premises. • Agency should have professional experience and trained to use pest control. • Agency should have license to stock and use of insecticides for commercial pest control operation. • Anti-termite treatment **guarantee for 10 years**. • Agency should quote rate of Anti-termite treatment **on per Square-Meter basis**. • Give your mode of treatment in details.	400 Sqm			

Electrical Engineering Department:

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + Octroi b	Total Amount (a * q) + b
01	**Single Phase Dimmerstat : (Spindle Mounted)** Type: Input: 240V, 50Hz, Output: 0-270V Maximum load : 15 Amp	6 Nos			
02	**Three Phase Dimmerstat : (Spindle Mounted)** Input: 3-ph, 50 Hz, 415V, Output: 0-415V, Output current: 15A per phase	6 Nos			
03	**Diode Clamp Five level Inverter :** Maximum Input DC 600V, Output, 3-ph AC 400V, 10A, Rectifier Bridge for AC to DC converter. Hall effect current sensors and voltage sensor should be provided, 24 IGBTS, 24 gate driver, Opto isolators for PWM signal isolation. High speed Driver IC, Ambient temperature 45^0, Over Current protection,	01			
04	**Programmable A.C Power supplies :** • Single phase & Three phase output with 230V & maximum 20A rms line current. • Voltage and frequency should be controllable and harmonics in voltage can be added up to 49^{th} harmonics. • This power supply should be useful for harmonics and transient condition system testing. • Input maybe single phase 230V, 50 Hz AC.	01			
05	**Matrix Converter:** • 3-ph to 3-ph Matrix converter using IGBT bidirectional switch. • External Digital PWM controller (FPGA) to generate PWM signal for matrix. • 3-phase Induction Motor load setup (1 HP, 3-phase, 400V, 50 Hz, AC) • Converter Input Voltage rating 415V, 20A, 50 Hz • Converter Output- Voltage 0 to 400 Volts Variable, frequency 0 to 50 Hz Variable, Current 20 AMP.	01			
06	**Function Generators :** Sine, Cosine, Triangular, Square wave generation with variable frequency (10 Hz-10MHz, 0 to 30 Volts PP)	05			
07	**Dual Power supply :** 0-30 V, 5A, Variable with Short circuit and current limiting protection	15			
08	**Single Power Supply :** 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	SCADA system for TLS 08 : SCADA system for TLS08 –Technical Specifications: The SCADA system should have following features - • MODBUS Communication facility • USB / Ethernet based connection interface • Desktop Monitoring of the different points – Primary, Secondary, Receiving End, Load, Cap Bank • Parameters monitoring and control – • Active, Reactive and Apparent Power per phase and total • Power factor per phase and average of 3 phases • Voltages – per phase and average of 3 phases • Frequency ,Control of Primary Breaker • Control of Secondary Breaker , Auto and manual modes of operation • Control of Inductive Load Switch ,Control of Resistive Load Switch • Separate control of 10 stages of Capacitor bank • Auto and manual modes of operation	01			
11	**Universal relay Test Kit :** Universal Relay Test Set: Technical Specifications: 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.	01			
12	**Differential Relay Trainer ;** Microprocessor/ Microcontroller Based % Differential Relay trainer with transformer **:** Should have following features - • biased differential relay, • current rating 1A, with bias settings of from 10% to 50% in steps • Aux. supply 110VDC. • Suitable CTs for primary and secondary sides • Readout for primary and secondary currents, Set time, trip Time, DMT/IDMT setting, Biased/Unbiased status • Activation of Relay function, reset function, LCD display • Current input range 0-20 A, Input Voltage 0-230 V • Phase angle adjustment from 0-90 degrees • Aux. output contacts – 4 no. of NO type, 230 V, 10 A rating • PC interface facility, 3 phase variac, 2KVA, 3 phase transformer suitable for the set-up with inter winding terminals for fault creation.	01			

13	**Desktop Computer :** **Intel Core 7-2600 Processor** (3.40GHz,8MB),4GB Non ECC DDR3 @1333 MHz SDRAM Memory, 1 TB @7200 RPM 3.5" SATA Hard Drive,16X DVD+/-RW Drive, Intel Q 65 Chipset Mother Board, Integrated Intel Graphics 2000,Integrated Intel 82579LM Ethernet LAN 10/100/ 1000, USB Entry Keyboard KB212B, MS 111 Optical Mouse, E1912 H 18.5" Widescreen Monitor with LED backlight, Internal Business Audio Speaker, DOS Factory Installed (English) Integrated Conexant CX20641 High definition Audio Codec, Desktop Convertible Chassis + Standard 250W SMPS, Warranty : 3 Years – DELL 790 DT (i7 N Series) or equivalent	50 Nos			
14	**LCD Projector** : XGA resolution, 3000 Lumens, Aspect ratio 4:3, Contrast 3000:1, Lamp life 5000 Hs, RGB liquid crystal shuttle projection, USB support , Warranty – 2 Years – Epson X-14 or equivalent	2 Nos			
15	**Printers:** All in one (Scan with printer and copy) HP makes Printer (Model No. HP 1005) details specification 14 ppm (ISO) –A4 print & copy, 150-sheet input tray+ 10- sheet priority feed, 1200x1200 dpi print resolution, manual duplex & Booklet printing, watermarks, Economode,230 MHz with 32 MB Ram	05 Nos			
16	**8051 Development Board:** RS-232c UART port, Four port pins separate sockets (04) p0,p1,p2,p3 with pull-up to one port (.p1), For one port LED's connections with LED I/P socket 8 (pin) for 8 LED's keypad 4x4= 16 key codes, 7 segment display on board with 7 segment I/P socket (A,B,C,D,E,F,G), 8 bit ADC 0809, 89c51uc 40 pin plug in socket. Suitable power supply with adaptor	20 Nos			
17	**PIC Development Board:** RS-232c UART port, Four port pins separate sockets (04) p0,p1,p2,p3 with pull-up to one port (.p1), For one port LED's connections with LED I/P socket 8 (pin) for 8 LED's keypad 4x4= 16 key codes 7 segment display I/F on board with 7 segment I/P socket (A,B,C,D,E,F,G) 8 pin ADC 0804 on board LM-35 port PIC 16F/18F877 40 pin plug in socket.PIC programmer Separate (H/W) Power Supply 12V adaptor.	10 Nos			
18	Magnetic Levitation Apparatus : Specifications • High Flux Drive Coils at Top & bottom • Laser Feedback Sensors Top & bottom • Low Friction Guide Precision ground & polished glass • Rare Earth Magnets NbFeB, one or two at a time for SISO or MIMO • Laser Conditioning Electronics to provide high resolution position measurement • Magnet Storage Safely stows high strength magnets • Attachment For Turntable Optional, demonstrates induced field levitation 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. Drive Amplifiers- Linear range ± 40V out, 500 Hz current loop bandwidth, Size & Weight- 36x36x30 cm. (14x14x12 in.), 5.1 kg. (11 lb.), Turntable Accessory- Dynamically balanced spin platter, 0-500 RPM, Accessory Sensor & Actuator- Optical encoder, 12,000 counts/rev. Rare earth, servo motor Accessory Size & Weight- 38x38x15 cm. (15x15x6in.), 4.3 kg. (9.5 lb.)	01 Nos			

19	**Solar PV Grid Tied System:** • 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. • PV modules (230 Wp)- 2 unit • Control unit • Accessories : 1) Power Analyzer 2) Experimental manual 3) connecting leads 4) Shading element		01			
20	**CSTR Control System Trainer : which includes** • Feedback control. Feedback Pressure control • Feedback Temperature controls. PID control. P, P+I, P+I+D CONTROLLER ACTION. • Hot Water Tank (HWT), Reactant Tanks, Product Tank, Pump for HWT, Pump for Reactant tanks, Piping, temperature transmitter. Electronic PID Controller, Computer. SCADA application software • Pressure transmitter, level Transmitter, Level Indicator, Miniature level Switch, E/P converter • Heater Coil, Rotameter, Thermostat (temperature controller) and electrical Control panel.		01			
21	**Rheostat**s: (1) 20 ohm,8.5 Amp range Rheostat for practical use only, Make: Toshniwal or equivalent make (2) 350 ohm,1.2 Amp range Rheostat practical use only, Make: Toshniwal or equivalent make (3) 700/750 ohm,1.2 Amp range Rheostat practical use only, Make: Toshniwal or equivalent make (4) 170 ohm, 2.8 Amp range Rheostat practical use only, Make: Toshniwal or equivalent make		10 each			
22	DC 0-5-10 Ammeter	Permanent magnet, Class 1.0,IS 1248	10			
23	DC 0-100 mA Ammeter	Permanent magnet, Class 1.0,IS 1248	05			
24	DC 0-15-30 Amps Ammeter	Permanent magnet, Class 1.0,IS 1248	10			
25	DC 0-0-30V Voltmeter	Permanent magnet, Class 1.0,IS 1248	10			
26	DC 0-75-150-300 V, Voltmeter	Permanent magnet, Class 1.0,IS 1248	10			
27	AC Ammeter 0-5-10 Amps	Moving coil, Class 1.0,IS 1248	05			
28	AC Ammeter 0-15-30 Amps	Moving coil, Class 1.0,IS 1248	05			
29	**Brief Proposal; for Setting up 15 KW Grid Interactive Solar Generating System (without Battery Bank) : system components**: • Solar PV Modules Multi Crysteline Technology of 200 to 280 watt peak of Vikram/Waaree make Smart Grid Interactive Inverter of SMA /Refusol/Schneider make • Electrical Switchgear and cables any reputed make		01			
30	**Thermal Imager with following specifications:** 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) : < 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, Temperature measurement range : -20 °C to + 150 °C (-4 °F to 302 °F), Temperature measurement accuracy: ± 2 °C or 2 %		01			

	(at 25 °C nominal, whichever is greater), Standard 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				
31	**Earth tester**:--- Earth resistance range 20 ohms: 0.01 ohms to 19.99 ohms, 200 ohms : 0.1 ohms to 199.9 ohms 2 kilo ohms : 0.01 kilo ohms to 19.99 kilo ohms Accuracy : +_ 2 % of reading +- digits Maximum services error: +_ 5 % of Reading 3 +- Display: 3 and ½ digit LCD WITH OHMS ,KILO OHMS AND Battery Voltage indicator. LED indication for high voltage, high current resistance. Test Frequency :- 128 Hz, +- 0.5 Hz.	01			
32	**SCOPEMETER 4 CHANNEL 100 MHZ COLOR :** 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			
33	**Multimeter with following Specifications (Fluke 289/287 or Equivalent) :** ➢ **Voltage DC : Accuracy Range and Resolution :** 0.025 % , 50.000 mV, 500.00 mV, 5.0000V, 50.000V, 500.00 V ➢ **Voltage AC : Accuracy Range and Resolution** : 0.4 % (true-rms), 500.00 mV, 5.0000 mV, 50.000V, 500.00 V, 1000.00 V ➢ **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 ➢ **Current AC : Accuracy Range and Resolution :** 0.51 % (true-rms), 500.00 µA, 400.00 mA, 5.0000 A, 10.000 A ➢ **Temperature (excluding probe) : Accuracy Range and Resolution :** 1.0 % , - 200.0 ^{0}C to 1350.0 ^{0}C (-328.0 ^{0}F to 2462.0 ^{0}F ➢ **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 ➢ **Resistance 10 50 Ω (2 wire connection): Accuracy Range and Resolution :** 0.15 % + 20, 50.000 Ω ➢ **Capacitance : Accuracy Range and Resolution : 1.0 %,** 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 ➢ **Frequency : Accuracy Range and Resolution :** 0.005% + 5, 99.999 Hz, 999.99 Hz, 9.9999 kHz, 99.999 kHz, 999.99 kHz	01			
34	**FEM BASED** 2D/3D **ELECTRICAL MACHINE DESIGN SOFTWARE.** 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	01			

35	**Rooftop wind power generation system** 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. Wind turbine suitable for rooftop mounting with 6 meter tower suitable for mounting on the building terrace. 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.	01			
36	Voltas/LG/Llyod/Blue star make 2.00 ton split air conditioning unit with condenser and evaporator of copper make. Stating clearly, a. Star rating b. output watt c. Warranty of 5 years for compressor etc complete as directed by engineer incharge. Extra copper piping as per on site requirement.	04			
37	**STATCOM FACTS CONTROLLER SETUP::** Three phase input AC Source (3Phase Alternator set up) **1 Three phase Alternator set up** 3 Phase / 1 KVA / alternator coupled with suitable AC motor with necessary drive provided for transmission line input. Alternator specification • 3 phase, 1KVA, 1500 rpm, salient pole type, coupled with 2 hp, 3phase 220volts AC Motor, 1500rpm. with speed sensor and digital speed indicator • 2 HP / single phase input, with 3 phase output VFD controller to be provided for AC motor Speed control **2 IGBT BASED VOLTGAE 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.	01 Set			

- 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 150MZ;
- 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
- 230v ac input

Sample Program for DSPIC

sample program FACTS control

1. Facts controller-SSSC sample program
- Facts controller-STATCOM

Shunt & Series Transformer With Filter , Meter and load set up

- One No. of Three Phase 1.5 KVA Special wound transformers act as
- Series Transformer with capacitor (5A) & inductor (5A) filter provided for SSSC applications
- DIGITAL METERS AND LOAD SETUP
- Digital meters provided to indicate sending end, receiving end parameters and Feed back to DSP controllers.
- Sending End / Receiving End Parameters like **Voltage, Current, Power factor, Active Power & Reactive Power**
- Three Phase RLC Load of 2KVA Capacity is provided as Load

4 Solar panel based 3 Phase AC Source –Grid Connected : GRID Connected Solar power Generation System- 1000W

This set up is designed to study the working principle of Grid connected power generation system using solar system. This set up consists of

- One number of 1000W solar Panel is provided and it is fixed on the metal frame
- Halogen Lamp array is Mounted on the metal frame for testing solar Panel
- Provision to adjust the lamp position in 30-180degree
- Provision to adjust the lamp Height in 30-180degree
- Specifications

	o 48VDC Output o 1000W **Battery charger set up with Battery** This set up consists of (1) 12v Battery, (2) Battery Charger with MPPT Technology. Detailed specification of this set up • Four number of 12V /40AH Battery is provided • One number of Battery charger with MPPT Technologies for Solar input • One number of Battery charger with MPPT Technologies for Wind input • Necessary Analogue meter is provided for ▪ Solar Panel output voltage , Current measurement ▪ Battery charger output voltage , Current measurement etc ▪ **DC –AC inverter (1000W)** This set up is used to convert the battery dc voltage to three AC using MOSFET inverter. This set up consists of • MOSFET Based sine wave inverter power circuit • 48/110VDC Input, 230VAC Output, 3 phase • 1000W Capacity • Necessary meter for output ac voltage , current measurement • Single phase Lamp load is provided @ 1000W Ratings ▪ Different load ON/OFF Switch is provided				
38	**INVERTER POWER MODULE** * Input : 3 phase 50 Hz. Output : 400V/10A , AC/DC on each Leg of 3 phase Bridge **POWER MODULE** * **1200V, 25A, 12 IGBT 6 leg Inverter Bridge(6 leg, 12 IGBT, 2 per leg)** * 1200V, 10A IGBT for over voltage Breaking * Built - in over voltage, under voltage, over current & over Temperature Protection * 750V, 8A DC bus, Electrolytic DC Power Capacitors 2 nos., Center point of capacitor branch shall be brought out for measurements/circuit connections. **ADDITIONAL FEATURES** * 1200V, 25A Converter Bridge for AC-DC power conversion * 4 Nos of Hall Effect current sensors to sense the DC Link current & 6 output current of the Inverter Bridge	01 Set			

	* 1 No of Hall Effect Voltage sensor to sense DC Link voltage, • All the PWM signals shall be isolated using Opto Isolator, • Protection circuit for over current with LED indication * Optically Isolated Fault signal from the IPM shall be given to the Embedded/DSP controllers for protection. * Independent Power supplies for all Isolated circuits. • 0-900V Voltmeter to Indicate the DC Link Voltage * All current, PWMS & Feedbacks shall be terminated at Front panel * FRC Connectors shall be provided to Interface with the Embedded/DSP controllers * All the Input/Output Lines shall be terminated at Banana sockets. * Separate use of Rectifier and Inverter power circuit shall be possible by providing separate connections on front panel.				
39	4 Channel digital storage oscilloscope sampling rate 1GS/s, Bandwidth 100 MHz, USB support on flash drive storage, auto measurement (Aplab/Tektronix make)	02 Set			

Applied Mechanics Department:

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + Octroi b	Total Amount (a * q) + b
1	**HIGH SPEED POWERS CUTTER** For cutting rock, tiles, paving blocks etc.	1			
2	**FLOWMETER AND FLOWGAUGE** To measure flow, consistency and workability of fresh concrete.	1			

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + Octroi b	Total Amount (a * q) + b
		Q	a	b	(a+b)*q
1	**Work Station** HP Z820 Workstation (ENERGY STAR) (**Product ID:** F1K12UT) **System features** **See detailed specs:** US QuickSpecs » pdf **Operating system:** Windows 7 Professional 64 (available through downgrade rights from Windows 8 Pro 64) **Processor:** Intel® Xeon® E5-2637 v2 (3.5 GHz, 15 MB cache, 4 cores) **Number of Processors:** 1 **Chipset:** Intel® C602 **Form factor:** Rackable minitower **Memory** **Standard memory:** 16 GB 1866 MHz DDR3 ECC Unbuffered RAM (2 X 8 GB) **Memory slots:** 16 DIMM **Storage** **Internal drive bays:** Four 3.5" **External drive bays:** Three 5.25" **Internal drive:** 1 TB 7200 rpm SATA **Storage controller:** Integrated SATA 6.0 Gb/s **Optical drive:** SATA SuperMulti DVD+/-RW **Graphics** **Graphics:** NVIDIA Quadro K4000 (3 GB) **Expansion features**	1			

Ports:
4 USB 3.0
5 USB 2.0
2 IEEE 1394a
2 microphone
1 audio line out
1 headphone
1 audio line in
1 serial
2 PS/2 (keyboard & mouse)
2 RJ-45 to integrated Gigabit LAN

Slots:
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)

Communication features

Network interface: Integrated Intel 82579LM PCIe Dual GbE controller

Audio: Integrated High Definition Realtek ALC262

Input Device:
1. HP USB Standard Keyboard,
2. HP USB Laser Scroll Mouse

Output Device:

1. Monitor

GENERAL	
Display	24" inch LED Backlit LCD Display
Backlight	LED Backlight
Panel Type	IPS
Resolution	1920 x 1080 pixels
Full HD	Yes

CONNECTIVITY	
HDMI	Yes
DVI	Yes
VGA	Yes
Other Connectivity Features	DVI-D

WARRANTY	
	3 Years Warranty

2. **Speakers 7.1**

3. **Printers**

Print Quality	1200x1200dpi
Multi function	Print, Scan and Copy
Print Type	B/W Laser Jet
Duplex Printing	Automatic Two-Sided Printing
Paper Size	A6 – A3
Warranty	3 years (OnSite)

Power	
Power supply:	1125W 90% efficient, wide ranging, active PFC
UPS	Compatible with workstation
Dimensions and weight	
Dimensions (w x d x h):	8 x 20.7 x 17.5 in (20.3 x 52.5 x 44.4 cm)
What's included	
Security management:	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)

	Warranty:	Protected by HP Services, including a limited 3 years parts, 3 years labor, and 3 years onsite service (3/3/3) standard warranty. Certain restrictions and exclusions apply.					
2	**Computer**			5			
	Operating System	Windows 7 Professional 64-bit					
	Processors	Intel® Core™ i7-4960HQ Processor (6M Cache, up to 3.80 GHz)					
		Clock Speed	2.60 GHz				
		# of Cores/ # of Threads	4 / 8				
	RAM	Memory Types	DDR3L				
		RAM	8 GB				
		Memory Speed	1600 MHz				
	Storage	Type (SSD/HDD)	HDD				
		Capacity	1TB				
		Rotational Speed (RPM)	7200 RPM				
		Interface (SATA2/3)	SATA 3Gb/s				
		Type (SSD/HDD)	HDD				
	Graphics	Memory Type	DDR3				
		Memory Capacity	2 GB				
		Graphic Processor	NVIDIA GeForce GT 740M				
	Chipset	Intel H67					
	Periperhals	Keyboard	2.4GHz usb Keyboard				
		Mouse	USB Mouse				
	Connectivity Options	DVI	Yes				
		HDMI	Yes				
		USB 2.0	Front 2, Rear 4				
		USB 3.0	Front 2, Rear 2				
		SPDIF Audio Out	Yes				
	Compatible Displays (screen size diagonally measured)	21.5 inch LED Backlit LCD Display, Full HD 1920 x 1080 pixel Resolution					

	Audio:	Integrated High Definition Realtek ALC262				
	Chassis Format / Standard	Micro-ATX				
	Warranty	3 Years				
3	**All in one printer (Colour)** **Detailed Technical Specification Multifunction Printer**		1			
	CONNECTIVITY					
	USB support:	USB 2.0				
	COPY					
	Maximum Copies:	20				
	GENERAL					
	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)				
	PAPER HANDLING					
	Input tray capacity:	100 pages				
	Media size supported:	A4, A5, A6, B5, C6, DL				
	Output tray capacity:	30 sheets				

	Media types supported:	Paper, Envelope				
	PRINT					
	Print Speed Color:	15 ppm				
	Print speed Photo (10 x 15):	69 sec				
	Max Print Resolution (Colour):	5760 x 1440 dpi				
	Duplex Print:	Manual				
	Print Speed Mono:	33 ppm				
	SYSTEM REQUIREMENTS					
	Operating System :	Windows XP and Above, Mac OS: 10.5.8, 10.6.x, 10.7.x				
	SCAN					
	Scan Type:	Flatbed				
	Scan Method:	Contact Image Sensor (CIS)				
	Bit depth Mono:	16-bit, 8-bit, 1-bit				
	Scan area size:	216 x 297 mm				
	Bit depth Colour:	48-bit, 24-bit				
	Scanning Speed Mono:	0.0072 sec				
	Scanning Speed Colour:	0.0143 sec				
	Optical scanning resolution:	600 dpi				
4	**All in one printer (B/W)**					

	Detailed Technical Specification of Leserjet Printer		4			
	CONNECTIVITY					
	USB support:	USB 2.0				
	COPY					
	Copier resize:	25 % - 400 %				
	Copy speed Mono:	32 cpm				
	Maximum Copies:	99				
	Copy Speed Color:	9 cpm				
	FAX					
	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				
	PAPER HANDLING					
	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				
	PRINT					
	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				
	SCAN					
	Scan Method:	Contact image Sensor (CIS)				
	Bit depth Colour:	48-bit, 24-bit				
	Bit depth Mono:	16-bit, 1-bit				
	Optical scanning resolution:	1200 dpi				
	Scan Type:	Flatbed				
	Scan area size:	216 x 297 mm				
	Scanning Speed Mono:	0.0088 sec				
	Scanning Speed Colour:	0.0254 sec				
	SYSTEM REQUIREMENTS					
	Operating System :	Windows XP, Windows XP Professional, Windows Vista, Windows 7, Mac OS X v10.4.11				
5	**External Hard Disk**					
	SPECIFICATIONS OF 1 TB EXTERNAL HARD DISK		1			
	GENERAL SPECIFICATIONS					
	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				

	WARRANTY					
	Warranty Summary	3 Years Warranty				
6	**Pen Drive (USB 3.0)**		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				
7	**Pen Drive (USB 2.0)**		10			
	SPECIFICATIONS OF PEN DRIVE					
	Type	Utility Pendrive				
	Capacity	8 GB				
	Transfer Speed	4 MB/s				
	Interface	USB 2.0				
	Form Factor	Standard Flash Drive				
	WARRANTY					
	Warranty Summary	2 Years Replacement Warranty				

Information Technology Department

Tender Items

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + Octroi / LBT b*	Total Amount (a*q)+b *
1	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	2			
2	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			
3	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			
4	3.5 inch, 4 TB NAS drive	6			
5	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			

Department: Electronics Engineering

Item No.	Particulars	Qty q	Basic Unit Price a	VAT + Octroi / LBT b*	Total Amount (a*q)+b*
	Items proposed under DRF				
1	**NETSIM – Network Simulator (Academic version 7.0 or higher) (20 Users)** **Protocols :** 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 **Wireless LANS** **Net Patrol - Real time packet capture** **Network Programming Exercises in C / C++** With Protocol Primitives C Source Code Library	1			
2	**DESKTOP Specification Core I 7** Intel®Core™i7 Processor (up to 3.9GHz,8MB) , 4GB /8 GB Non ECC DDR3 SDRAM Memory, 500GB @7200 SATA Hard Drive, 16X DVD+/-RW Drive, Integrated Graphics, Integrated Ethernet LAN 10/100/1000 , USB Entry Keyboard , Optical Mouse, 19" Widescreen Monitor with LED backlight, Integrated High definition Audio Codec, Desktop Convertible Chassis + Standard min 250W SMPS. Warranty : 3Year On-site	30			
3	**On line UPS** 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			
4	**Universal IC Tester** Suitable for all Digital IC, Linear IC, Microcontrollers, RAM, ROM, PAL, PLA etc.	2			
5	**Signal Strength Meter** TV signal strength meter; input from Yaggi-Uda Antenna, measurements in uV/mV, mW.	1			
6	**Pattern Generator** 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			

7	**Digital TV trainer Kit** 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			
8	**Color/Black & White TV Trainer Kit** CCIR-B-PAL-G, 625 lines	1			
9	**Networking Switches** 24/32 port Giga bit switches unmanageable, Fast Ethernet Switch, Full Duplex Capability, Auto sensing per device, auto uplink, store and forward	2			
10	**LINEAR VARIABLE DIFFERENTIAL TRANSFORMER (LVDT) (experimental set up)** 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			
11	**STRAIN GAUGE MODULE (experimental set up)** 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			
12	**DISTANCE MEASUREMENT USING ULTRASONIC SENSOR (experimental set up)** 4-5 meter senor range, provision of digital readout, capable for interface with data Acquisition System	1			
13	**TEMEPRATURE MEASUREMENT USING THERMISTOR (experimental set up)** Temperature range of 0-100 degree centigrade, Provision of digital readout, capable for interface with data Acquisition System	2			
14	**TEMEPRATURE MEASUREMENT USING RTD (experimental set up)** Temperature range of 0-100 degree centigrade. Provision of digital readout, capable for interface with data Acquisition System.	2			
15	**TEMPERATURE MEASUREMENT USING THERMOCOUPLE(experimental set up)** Temperature range of 0-100 degree centigrade, provision of digital readout, capable for interface with data Acquisition System	2			
16	**STUDY OF INDUCTIVE PICK UP (experimental set up)** Least count of 10 microns, provision of digital readout, capable for interface with data Acquisition System	1			
17	**ROTARY ENCODER FOR SPEED AND ANGLE MEASUREMENT (experimental set up)**	1			

	Microcontroller based system for angle and speed measurement. LCD Display interface.				
18	**Electronics System Trainer Board** 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			
19	**Signal Generator** 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			
20	**L-C-R-Q meter** 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			
	Items proposed under ME research Fund				
21	**NETSIM – RESEARCH Version 7** **Following components 5 user** • **Inter-Networks** Fast & Gigabit Ethernet, Wireless LAN 802.11 a / b / g, IP Routing RIP, OSPF, TCP, UDP • **Advanced Wireless Networks** Wi-Max, MANET • **Cellular Networks** GSM, CDMA • **Sensor Networks** Wireless Sensor Network, Zigbee With Protocol Primitives C Source Code Library	1			
	Items proposed under RPS (8023/RID/RPS/117/2011-12,728)				
22	**All in one Printer Canon image CLASS MF3010** 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)	1			

	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				
23	**XBee Pro Module - ZB Series 2 - 63mW with Wire Antenna** 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			
24	**Office Storewell** Size 78”×36”×18”; 18 gauge; with 5 compartment	2			
	Items proposed under RPS (20/AICTE/RIFD/RPS(POLICY-II)34/2012-13)				
25	**DELL™ Laptop LATITUDE™ - E6220** 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			
	Items proposed under MODROB embedded (12/AICTE/RIFD/MOD(Policy-2)-138/2012-13)				
26	**In circuit Emulator For 8051 MCU family kit with ICE with built- in processor** 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			

27	**Programmer for 8051 MCU family** 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			
28	**Keil Compiler for 8051 and/or ARM MCU Family Latest version** 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			
29	**8051 Development Kits for training** 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			
30	**Interfacing Kits/cards for the above Dev. Board** **a)** ADC Interface with On board analog input **b)** DAC Interface Pins provided to connect to CRO/DSO **c)** I2C & SPI Interface **d)** LCD Keyboard Interface: 16x2 alphanumeric LCD interface board with 4x4 matrix keyboard. **e)** 7 Segment Interface: 7segment LED interface board with 4x4 Matrix keyboard. **f)** LED & Switches Interface: 8 Keys and 8 LEDs provided for digital Input/ Output **g)** Stepper Motor Interface: Card for interfacing the stepper motor with Separate Stepper motor provided **h)** Traffic Light Interface **i)** Relay Interface Card **j)** DC Motor Interface Card Above Interfacing Kits/cards must be provided in separated casing or on board.	05			
31	**Integrated MCU Development kit** 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. You may also quote PLC and ARM or any more MCUs modules for this above kit separately	03			

Note:- * Indicates VAT + Octroi / LBT extra at actual

Mechanical Engineering

Sr. No.	Item with specifications	Qty q	Basic Unit Price a	VAT + Octroi / LBT b*	Total Amount (a*q)+b*
1	**Abaqus 6.13 with CATIA interface** 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.			
2	**Laptop for Computer Aided Analysis:** 1. Make of Laptop – DELL 2. Processor - Core i7 (fourth generation) 3. OS - **Windows 7** (**64 bit**) 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. **Ports:** Standard available 8. Battery - 6 cell Lithium Ion 9. External Key board and mouse 10. Cooling Pad for laptop	01 Nos.			
3	**IMAGE ANALYSER** **Image Analysis Hardware**: - Colour CCD camera Sony SSC-G818 or equivalent and must contain **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 to be moved freely in the image). Image format: BMP, TIFF, JPEG, PICT, AVI. Exposure time: Minimum (80 µs) 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. Printer: HP or equivalent Latest high-resolution Colour/ BW Scan, BW photo-copier, Laser Printer	1 Nos			

4	**METALLURGICAL MICROSCOPE** **Specification for Trinocular Inverted Metallurgical Microscope (with LCD Screen at least 9 inch)** 1) Quintuple/ Quadruple revolving nose piece 2) Trinocular head suitable for Image Analysis / Microphotography 3) Low voltage 6V, 30W halogen bulb with built in transformer. 4) Objectives: Plane achromatic 10x, 20x, 40x, 100x DRY 5) 5x, 10x, 15x, 20x W.F. wide field Eyepieces for clear high 2000X times magnified image. 6) Monochrome filters for observation 7) Co-axial Coarse and fine focusing movements 8) Field and aperture diaphragms for best possible illumination 9) Co-axial stage movement	1 Nos			
5	**AUTO-POLISHING STATION** **Technical Data**: 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.	1 Nos			
6	**COMPUTER INTERFACE WITH SUITABLE SOFTWARE** **Specification Sheet of Software Analysis Modules (suitable for all above equipments)** 1. Grain Size Analysis based on ASTM E1382-91 / ASTM E112 (Intercept Methods) 2. Inclusion Rating in Steels based on ASTM E45 (METHOD A) / E1122 3. Inclusion Rating in Steels based on DIN K4 4. Inclusion Rating in Steels based on JIS G055 5. Percentage, volume and area fraction and distribution of Phase(s) as per ASTM E 562. 6. Nodularity or Spherocity of nodules in C.I. as per ASTM E 247, Shape, distribution and nodule count 7. Measurement of Banding with avg., max, min bandwidth and length as per ASTM E 1268 8. Percentage of Phase versus distance from the edge in heat treated products. 9. Decarb Depth, Plating thickness (multiple coatings). 10. Automatic calculation of Micro-Vickers hardness in different scales and case depth from images of indentations. 11. Macro Photography of Macro Etched specimens for Failure Analysis 12. Graphite Flake length, width, distribution and percentage as per ASTM A-247-67 (Re	1 Nos.			

<table>
<tr><td></td><td>approved 1990)
15. Additionally with above features include independently “Casting Simulation Software” (AUTOCAST or similar) at least for single user.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>7</td><td>Servo Computerized Universal Testing Machine Capacity 400kN (40tons)
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.
Strain Rate:
Minimum 1.5 mm/ min
Maximum: 150mm/ min
Loading Rate:
Minimum 15kN/min
Maximum 800kN/min
Electronic Extensometer package for Proof Stress evaluation
A) Electronic Strain Gauge type extensometer with following specs.
Gauge Length: 25 & 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 & proof stress
Note: For proof stress values and graph use of computer is a must.

<table><tr><th>Measuring capacity(KN)</th><th>Measuring range(kN)</th><th>Least count (kN)</th><th>Load range in kN with accuracy of measurement ± 1%</th><th>Resolution of piston movement in mm</th><th>Overall dimensions approximately in mm</th><th>Weight approximately in Kg</th></tr><tr><td>400</td><td>0-400</td><td>0.02</td><td>8 to 400</td><td>0.01</td><td>2100 x 850 x2100</td><td>2000</td></tr></table>
Standard Accessories:
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</td><td>1 no</td><td></td><td></td><td></td></tr>
<tr><td>8</td><td>Impact Testing Machine:
Suitable for Charpy & Izod Impact tests on various materials.
Works on Pendulum principle.
Rigid designs of machine frame & other parts assure minimum energy absorption during</td><td>01 Nos.</td><td></td><td></td><td></td></tr>
</table>

	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 & for Izod is 170 Joules with a L.C. of 2 Joules. Pendulum drop angle for Charpy is 140° & for Izod is 90°. Accuracy should conforms to IS:3766-2003, IS:1598-1977, IS:1757-1999, IS:1499-2003, BS:131-Part-I,II,III,IV & BS EN-10045-1993 (for Charpy). Accessories: gauges, tongs, sub zero temperature bath				
9	Modeling and Simulation Software for Manufacturing Processes such as Forming, Casting, Rolling, Forging, Press Work and Machining etc. A- Academic version B- Professional version Note: Quote for Academic version and Professional version separately with EMD for higher quote version.	1 No.			
10	Stabilizer for CNC Lab of 10 KVA Capacity	1 No.			
11	Induction Heating System as per following specifications Specifications: ▪ High frequency induction heating system to heat work surface (upto 2 mm depth) mounted on CNC lathe machine chuck ▪ Work piece material and size : Al/SiCp metal matrix composites, Inconel of 20 to 30 mm diameter ▪ Temperature range : 60 to 450°C	1 No.			
12	EDM oil for EDM Machine having flash point more than 75°C	400 lit			
13	Machine Tool: EDM Machine with CNC Programmable software and standard accessories with one year standard warranty Technical Specifications:	1 No.			

Work tank internal dimensions (± 5 %) (W x D x H)	800 x 500 x 350 mm
Work table dimensions (± 5%)	550 x 350 mm
Traverse (X,Y, Z) (±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
Dielectric unit	
Dielectric capacity	300 to 400 Liters
Filtration system	10 µ paper cartridge 2 nos.
Pulse generator	**CNC EDM**
Pulse generator type	MOSFET
Maximum working current	40 to 50 A
Power supply	3 phase, 415 V* AC, 50 Hz
Connected load	6 kVA

Note: Mention additional charges for next 2 years warranty. Annual maintenance service charges for next 2 years

Note:

The above equipments include all relevant accessories (stand, dust cover, cable, power supply, stabilizer etc.), software & 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 *computing* facility. An optimum optical compatibility must be ensured for good performance to carry out the testing specified work.

Compatibility, Installation & Training:

(1) Software must have the capability to have modules added for future use, for example to examine weld structures etc.
(2) All adapters and tools for installation on metallurgical microscope
(3) Metallurgical Microscope Microstructure Specimen Set (at least 25 Type of Sample)
(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.
(5) Commissioning/ Installation and 2-3 days application oriented training at WCE should be done by the Party.
(6) No deviation is accepted from above mentioned specifications.
(7) In case of dispute, persons appointed by WCE will act as Conciliator.
(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.

Computer Science and Engg. Department:

Item No.	Particulars	Qty q	Basic Unit Price a	VAT + Octroi / LBT b*	Total Amount (a*q)+b*
	1. Networking of renovated Server / Linux Lab				
a	**LAN Cable** D-Link or Equivalent CAT6 UTP23AWG Solid	**1500 mtr**			
b	**Keystone Jack** D-Link or Equivalent JackCat 6 Keystone UTP with Collapsible Shutter- White	**60 Nos.**			
c	**Face Plate** D-Link or Equivalent (Keystone Jack, square)	**60 Nos.**			
d	**TR BOX** D-Link or Equivalent(Surface Box)	**60 Nos.**			
e	**Patch Cord (3M)** D-Link or Equivalent CAT6 UTP 24AWG PATCH CORD:3M, Plug 30U' Snagless	**60 Nos.**			
f	**Patch Cord (1M)** D-Link or Equivalent CAT6 UTP 24AWG patch cord:2M, Plug 30U' Snagless	**70 Nos.**			
g	**Patch Panel** D-Link or Equivalent, Cat 6 UTP Keystone Type- 24 Port-Fully Loaded	**3 Nos.**			
h	**Switch** D-Link or Equivalent 24-Port 10/100/1000Base-T Unmanaged Standalone Gigabit Switch (Green Ethernet)	**3 Nos.**			
i	**Networking Racks** 6U Standard size fullloaded or equivalent	**1 No.**			
j	**Networking Racks** 9U Standard size full loaded or equivalent	**2 No.**			
k	**LAN Cable Duct** 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.**			
l	**Access Point** as per following specification or equivalent Wi-Fi Interface 802.11a/b/g/n 2.4/5.0 GHz	**2 No.**			

	LAN Interface Antenna Power Method Data Transfer General Specifications Wireless Security Enclosure Type	10/100/1000 Gigabit Ethernet 2x2 MIMO embedded antenna with 4 external antenna connectors external power adapter 2.4 to 2.497 GHz and 4.9 to 5.85 GHz 300 Mbps WEP, Dynamic WEP, WPA Personal/ Enterprise, WPA2 Personal/ Enterprise PC or plenum-rated chassis				
2	**High end workstation IBM/ DELL / HP or equivalent MNC brand** 2/4 Intel Xeon Processor (6/8 or above Cores per processor) , 32/64GB DDR3, 2/4 TB Hard Drive, 16x DVD+/-RW Drive, NVIDIA Graphics card, 29" monitor with all other standard configuration. 3 years onsite warranty.		**One**			
3	**On Line UPS** One or Two KVA On Line UPS with 1 Hr backup or equivalent 3 years onsite warranty.		**One**			
4	**Android Development Kit** With following minimum specifications Display4.8 inch HD Super AMOLED min (1280x720) display Network/Bearer and Wireless Connectivity Memory -16/ 32GB User memory) 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.		**One**			
5	**GPS Device** Apple I5 IPAD 10" with SIM facility 3 years onsite warranty or equivalent		**One**			

6	**Software** Verifinger SDK: Std Edition (V6.7) or equivalent	**One**			
7	**Thin-Clients:** **L300 Ethernet Virtual Desktop** 2 remote USB 2.0, microphone jack speaker jack, 10/100 ethernet, VGA USB 1.1 for keyboard & mouse 12v DC Adapter USB Keyboard & Optical Mouse 18.5" LED Monitor NComputingVspace Server desktop virtualization software with User Extension Protocol (UXP) 3 Years Onsite Warranty or equivalent	**55 nodes**			
8	**Desktops:** **IBM / DELL / HP or Equivalent** AMD Dual Core 1.4 GHz or above,2GB RAM,180/360 GB HDD, keyboard, mouse and 18.5" LED Monitor with other standard configuration or equivalent Warranty : 3Years	**55 desktops**			
9	**Software** DPlot V.2.3.4.4 - graph software for scientists and engineers or equivalent	**One**			
10	**Software** Mxgraph V.2.3.0.4: mxGraph modern or equivalent	**One**			
11	**Software** ACL2: 3 clause BSD (V 6.2) or equivalent	**One**			
12	**Software** Prover 9/Mace 4 –GPL V.0 5 or equivalent	**One**			
13	**Software** IsaPlanner V.2: GPL or equivalent	**One**			

Terms & Conditions

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. The offer value is to be calculated on the basis of Rate **x** Quantity
8. Tender documents should be sealed in an envelope along with duly signed terms & condition sheet in the college office ***on or before 17th January 2014 (3:00 pm).*** Late documents will not be accepted. -
9. 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; 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.
10. If the space provided in any one of the columns of the tender form is not enough, additional pages may be attached.
11. 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.
12. **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**.
13. The bidder has to submit an undertaking for terms and conditions, if selected for placing the order.
14. Rates quoted should be valid at least for **One Month.**
15. The supply of materials should be done within two weeks after date of purchase order.
16. Legal matter will be restricted to Sangli jurisdiction.
17. Quantity mentioned in tender for item may vary depending on availability of fund.
18. 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 Rs. Ps.	EMD Rs. Ps	D.D. Details		
				D.D. No.	D.D. Date DD/MM/YYYY	Nationalized Bank's Name
1	**MECHANICAL**					
2	**CIVIL / GENERAL**					
3	**APPLIED MECH**					
4	**ELECTRICAL**					
5	**ELECTRONICS**					
6	**INFORMATION TECHNOLOGY**					
7	**CSE**					

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	**MECHANICAL**	(0233)-2300716	hod.mechanical@walchandsangli.ac.in
2	**CIVIL / GENERAL**	(0233)-2300330	hod.civil@walchandsangli.ac.in
3	**APPLIED MECH**	(0233)-2300176	hod.apm@walchandsangli.ac.in
4	**ELECTRICAL**	(0233)-2300933	hod.elect@walchandsangli.ac.in
5	**ELECTRONICS**	(0233)-2304470	hod.eln@walchandsangli.ac.in
6	**INFORMATION TECHNOLOGY**	(0233)-2301910	hod.it@walchandsangli.ac.in
8	**CSE**	(0233)-2301327	hod.cse@walchandsangli.ac.in