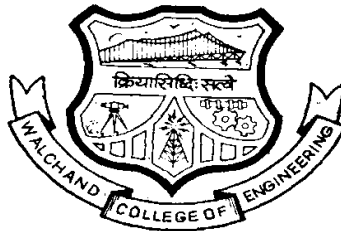**COST OF TENDER FORM : Rs.1000/-**

WALCHAND COLLEGE OF ENGINEERING,
SANGLI
An Autonomous Institute

TENDER DOCUMENT

LAST DATE OF RECEIVING TENDER
22nd September, 2017up to2:00 p.m.

DATE OF OPENING THE TENDER

22nd September, 2017at 3.30 pm

In Conference Hall, Main Building

INVITATION FOR TENDERS

Ref No; - WCE/CS/   Date: - 28.8.2017

To_____

_____

Dear Sir,

Sub: Invitation of Tender for supply of equipments/material 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 46. 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.Each Page 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 tenderfor one particularly department or section.**
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/GST 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 (Name of the resp. department)". 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

1. **Electrical Engineering Department: -**

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
Under **PG DRF & DRF 2017-2018 :-**						
1	**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.					

2	**Current Transducer** : LEM Current Transducer model LA 25-NP	6					
3	**Voltage Transducer** : LEM Voltage Transducer model LV 25-600	6					
4	**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	10					
5	**LCD Projector:** Brightness at 5,000lm, WXGA Resolution, Multi-PC projection with moderator function Auto power on Built-in 16W speaker EPSON EB 1970W or Equivalent	5					

6	• **Delfino**: TMS320F28335 Experimenter kit (4 nos)
	• **Analog Attach MCU Labs (ARM)**: A secondary Element that attached to Micro controller Lab
	  ➢ CC110L Booster pack : (4 Nos)
	  ➢ TIVA Lauch pad : (10 Nos)
	  ➢ Sensor Hub Booster Pack (2 Nos)
	• **Connectivity Attach Lab (Ultra Low Power Lab/Internet of Things Lab (IOT)**: A secondary Element that attached to Micro controller Lab Or stand alone solution focusing on connectivity
	  ➢ Ez430RF-2500 MSP430 Wireless Development Tools : (2 No)
	  ➢ MSP 430 G2 Launchpad : (10 Nos)
	  ➢ SimpleLink Wi-Fi CC3100 Booster Pack : (4 Nos)
	  ➢ SimpleLinkTM CC2640 R2F Bluetooth Wireless MCU Launch Pad Kit (2 Nos)						

7	dSPACE ACE kit 1104 and CLP1104: dSPACE ACE kit 1104 - software Implementation software = RTI, MLIB/MTRACE, Experimental Software-control Desk developer version CCPPPC- Microtec C complier for Motorola power PC dSPACE ACE kit 1104 –Hardware Processor power PC type= PPC803e, CPU clock=250 MHz, Cache=2x16 KB memory, SDRAM=-32 MB, SDRAM flash=8MB, 4 general purpose timers, 32 bit down counter, 80 nanosecond resolution AD converter, 4 multiplexed 16 bit,2 microsecond, 4 parallel, 12 bit 800 nanosecond 10 volt or higher D/A converter, 8 channel,16 bit,+-10 V, D/A converter 8 channel 16 bit +- 10V, 10 micro second or higher, SLAVE DSP TMS320F240, 20 MHz CLP1104-connector/ LED combi panels for DS1104 Connector panel provides easy access to all input and output signals on the controller board, analog signals via BNC connector, digital signals on SUB D connector. Connector/ LED combi panel contains additional LED panels to indicate the current level of digital signal.	1				
8	**NI Hardware:** 1. NI cRIO-9066: cRIO-9066, 8-slot Chassis with Integrated 667 MHz Dual-Core Cntlr 2. NI 9244: NI 9244, 400 Vrms L-N, 24-Bit, 50 kS/s/ch, 3-Ch, AI Module 3. NI 9247: NI 9247, 50 A, 24-Bit, 50 kS/s/ch, 3-Ch, AI C Series Module 4. NI 9401 with DSub: NI 9401 8-Channel, 100 ns, TTL Digital Input/Output Module 5. NI 9502 C Series Brushless Servo Drive Module	2				
9	**Thyristor Controller Series Capacitor Trainer :** It shall consists of a 3Φ, 1KW Transmission line section, TCSC circuit section, Input /Output section, MFMS, MCCB, Industrial 3Φ input socket, Fuse etc., Input /Output Terminal section: * 3Φ, 1KW input shall be applied through an industrial socket or 3 Banana connectors * One MCB, 3 Fuses shall be provided at the input for over current protection. * Two MFM at the input & output side to measure & display various parameters like i) Voltage ii) current iii) Frequency iv) Harmonics v) PF vi) KVR vii) KVA * A compression of input & output parameter possible * Output form TCSC circuit section shall be terminated at industrial socket and 3 banana connectors * One MCB and 3 Fuses shall be provided at the output for over current protection. * Pilot lamp indications shall be provided to represent healthy source Three Phase TCSC Section Thyristor-controlled series capacitor based Static-VAR compensator (TCSC-a typical series	1				

FACTS controller) composed of a series capacitance which shall have a parallel branch including a thyristor-controlled reactor. TCSC shall provide reactive power compensation for varying the reactance of the transmission line. TCSC shall operate in different modes depending on when the thyrsitor for the inductive branch are triggered. The modes of operation that shall be provided:
 * Blocking mode: Thyristor is always off, opening inductive branch, and effectively causing the TCSC to operate as FSC
 * Bypass mode: Thyristor is always on, causing TCSC to operate as capacitor and inductor in parallel, reducing current through TCSC
 * Capacitive boost mode: Forward voltage thyristor is triggered slightly before capacitor voltage crosses zero to allow current to flow through inductive branch, adding to capacitive current.
 * TCSC should provide 75% Capacitive compensation of the total 3 phase line reactance.
 * SCR power circuit components shall be provided to meet the above requirements.
 * Inbuilt controller board for controlling the firing angle 0-90° or 90-180° as per the reference of voltage wave form is taken.
 * 54nos of II section of Transmission line of 180km. Each section represents 10km.
 * Maximum power transfer 1KW.
 * Transmission Line Section
   # 3Φ Artificial Transmission Line of 180 Km long (10km PI Section)
   # 3Φ, 1KW input through 4 Banana Connector
   # Each II section shall represent 10KW transmission line
   # 3Φ input and output of each II section are terminated at 6 banana connector Each section can be patched to be included in the 180km transmission line.
   # The output of the transmission line connected to TCSC
   # Interface cards to export the measured electrical parameters of transmission line to PC
   # 3 banana socket (R-Y-B) provided at the input & output to each II section so that all 54 II section serially batched to form 180Km transmission line.
   # By providing Banana connectors at the input & output transmission line from 10km to 180km can be formed by patching the Banana connectors.
 Fault Creation Switch Section
  * 4 Banana connector (R, Y, B, G) for connecting any II section on the transmission line
  * This input from transmission line can be batched to symmetrical and asymmetric fault creation section through selector switch.
    # Three phase fault breaker/creater to create different types of fault e.g. LG, LL, LLG, LLL, LLLG at step of 10 KM in total line length of 180km.

	* One Rotary Switch connected to 4 Banana socket to create Asymmetric fault in the Transmission line.
	  * 2nd Rotary Switch connected to 4 Banana socket (R - Y - B - G) to create symmetric fault in any section of the Transmission line.
	  * 4 Banana socket (R- Y-B-G) hard wired to another 4 Banana connector provided so that one set of Banana connector can be patched to any II section output of the 180KM Transmission line.
	  * Other set of Banana connector can be patched to the fault creation switch.
	* Load Section:
	 This consists of R, L, C and Motor Load
	   # One Resistive Load with Selector Switch. # One no of 120mH, 3Φ Inductive Load.
	  # One no of Three phase Capacitive load, # 1 HP 3Φ Induction Motor with Mechanical Loading
	DSP CONTROLLER
	A powerful 32bit DSP controller TMS320F2812 shall be provided to generate PWM & Transmitter, PI controller, measure current & voltage of input & output lines for protection & controller etc. ,
	TMS320F28335 DSP Controller (Micro-28335)
	 * Processor: TMS320F28335 floating point
	 * Operating Speed: 150MHz, * 256KB on chip Flash Memory
	 * 34KB on chip SARAM, * 256KB external RAM for program / data
	 * On board isolated USB-JTAG emulator
	 * 20x4 LCD interface, * Opto Isolated onboard USB to Serial port
	 * 34 pin Interface connector for motor control
	   # 18 Motor Control PWM, # 6 capture I/P signals
	   # 2 Quadrature Encoder Interface, * 26 pin ADC I/F connector
	   # 16 channel 12bit ADC
	   # 12.5 MSPS sampling speed / 80ns conversion time
	 * 4 Channel 12 bit DAC terminated at J801 connector
	 * RS485 provided for interface with PLC SCADA						

10	**Multivariable Level Control Trainer(Quadruple Tank System):** The setup consist of supply water tank with two variable speed positive displacement pumps for water cisculation, five transparent process tanks fitted with level transmitters and flow dampers. The process signals from level transmitters are controlled in SCADA mode through serial based dual loop controller.	1				
11	**Solar Emulator:** 300 W, 50 V, 8A	1				

12	**Wind Energy Training System:** Artificial Wind Turbine 200 W, 11m/s, 24V	1					
13	**Wind Turbine Emulator:** Programmable DC Motor 220V, 2HP	1					
14	**Power Analyzer:** Simultaneous Power & Power quality measurements • Helpful support functions • Measurement with high accuracy • Remote monitoring on PC and Android device • Various Clamp Current Sensors • Energy consumption check on site	1					
15	**Active Harmonic Filter :** 3-Ph active harmonic filter suitable for 3-ph, 400V system current Rating 60 Amps, other specification are as follows: • 12 IGBT with 3 level Iopolosy, 32 bit digital signal processor. • Selecting drive control algorithm • Compensates up to 50th harmonics • Ultra fast response time 21 msec • Reactive power compensation and Balancing of loads.	1					
16	**3-Level Diode Neutral Clamp Inverter consisting of :** • Input DC voltage : 600V, Output AC Voltage : 415V, Output Current (IAC) : 35 Amps • Switching Frequency : 20 kHz, Ambient Temperature : 40^{0}C, Cooling Method : Forced Air • Duty Class : Class I and Fundamental frequency : 50 Hz • Stack consist of : 3 SKM 150 MLI 066TAT IGBT modules, P3 heatsink, 2 Fans, 6 SKYPER, 32 PRO Drivers, Electrolytic capator Bank, IGBT Snubbers and Thermal trip enclosed in polycarbonate box with elcon knobs on it.	4					
17	**Digital storage Oscilloscope with following specifications :(Tektronix model MDO 4000 or equivalent)** 1. Oscilloscope 4 analog channels , 500 MHz, bandwidth, Bandwidth is upgradeable (up to 1 GHz) Up to 5 GS/s sample rate 20 M record length on all channels > 340,000 wfm/s maximum waveform capture rate, Standard passive voltage probes with 3.9 pF capacitive loading and 1 GHz or 500 MHz analog bandwidth 2. Spectrum Analyzer : Frequency range of 9 kHz - 3 GHz, Ultra-wide capture bandwidth ≥1 GHz	1					

	Time-synchronized capture of spectrum analyzer with analog and digital acquisitions Frequency vs. time, amplitude vs. time, and phase vs. time waveforms 3. Arbitrary/Function Generator : 13 predefined waveform types, 50 MHz waveform generation, 128 k arbitrary generator record length, 250 MS/s arbitrary generator sample rate 4. Logic Analyzer : 16 digital channels, 20 M record length on all channels, 60.6 ps timing resolution 5. Protocol Analyzer: Serial bus support for I^{2}C, SPI, RS-232/422/485/UART, USB 2.0, Ethernet, CAN, CAN FD, LIN, FlexRay, MIL-STD-1553, ARINC-429, and Audio standards 6. Digital Voltmeter / Frequency Counter (Free with product registration): 4-digit AC RMS, DC, and AC+DC RMS voltage measurements, 5-digit frequency measurements						
18	**Single Board Heater System (SBHS):** • Powered by 12 volts 400W SMPS • Micro-controller: ATmega 16(with ISP programming facility) • Serial RS232 and USB support to communicate with PC • Temperature is sensed by AD590 temperature sensor. • Heater current and fan speed are two control inputs for this system. • 16X2 character LCD for displaying temperature, Fan & Heater in % of max value and Machine ID(MID) Temperature Sensor (AD590), Parameter Value, Voltage DC 4-to-30 V, Current Output 1µA/K, Temp. Range -55°C to +155°C, Accuracy ±0.3°C,	3				
19	**Robotic arm trainer:** It is a simple basic set up designed to give the student a feel about operation of a typical robotic system. It is a low cost elegant module for the purpose of demonstration. The Robot arm trainer is a jointed arm co ordinate robot that has a certain amount of range of motion. The robot's range of motion is described by degrees of freedom. To be useful for the work place a robot requires at least 6 degrees of freedom. The robot arm trainer has 4 degrees of freedom, 3 major and one minor. The three major degrees of freedom are found in the base, shoulder, and elbow joints which allow the robot to move up/down, left /right and in/out. This combination provides three dimensional movements. The minor degree of freedom is wrist rotation or roll.	1				

	The system comes with complete hardware for 5 degrees of motion with small 5 d.c. motors and related gear boxes. The unit can be used in manual control and software control. The software control is operated by interfacing the system with p.c. through an interfacing circuit using parallel port. The software enables the student to program the robot arm in various motions, using very powerful user friendly software. The robot can be made to perform in repeat mode also. The students themselves can design their own applications with reference to the hardware provided along with the system. The scope of supply includes 1.Basic Robot with 5 degrees of motion. 2. Necessary power supply. 3. Control pad for manual control/ 4.Interfacingunit for p.c. along with necessary cables for parallel port. 5. Detailed instruction manual. P.C. is not included in the scope of supply.					
20	**Single Board Multi Heater System**: Single Board Multi-Heater System, MIMO temperature control system with five input and five output variables. It consists of tin plate which acts as a plant, four 12 W heaters mounted above the plate which is placed at the middle of every edge of tin plate, FND-80-12V Fanon cooling fan below the tin plate for cooling the plate and five temperature sensors which are mounted below, one at every corner and one in the middle of the plate. An economical temperature sensor AD590 senses the temperature of this plate. A sensor has wide range of -55°C to 150°C with linear current output of. 1µA/K. Pulse width modulation (PWM) signals are used as inputs to the heaters as well as fan in order to control the heating input and speed of the fan. The PWM duty cycles are varied in order to adjust the heating input and fan speed. Arduino Uno is used as a communication link between hardware and the computer. The programs like Arduino IDE, Matlab, Scilab, Sandhi, Labview etc. can be used directly to get access to the I/O channels of Arduino Uno board and implement control algorithms on the system.	1				
21	**Portable Energy Meter Calibrator:** Electrical Accuracy : Class 0.2 with integral ring-type , CT Class 0.5 with external clamp-on CT Voltage input: (1 phase) 240 V AC ±30%, Current range : Integral Ring CT: 200 mA to 10 A External Clamp-on CT: 500 mA to 60 A (with Class 0.5 accuracy), Mains frequency: 50 Hz ± 5% Activity indicator: High-intensity red LED, Compliance - IEC 62053-11 and IEC 62053-22 S Mark safety certification, Weight : 0.9 kg (less than), Environmental Temperature :-10 ºC to +55 ºC (operating) Humidity :95% non-condensing	1				

22	Dual Power supply: 0-30 V, 5A, Variable dual output DC power supply with digital voltage & current display. Regulation $\pm$ 1 %, current & fine setting control for voltage current limit setting, Short circuit and over load protection.	6				
23	PSCAD X4 Academic: Twenty Five User Network Licence includes two- day on site installation & hands-on training.	1				
24	SIMATIC S7-1200 Programmable Logic Controller Trainer system (with HMI KTP1200 Basic, with DI & DO modules with AI and AO modules, with Power Supply module with software TIA portal with Simatic WinCC)	1				
25	**Dissectible Machine Set:** The complete Dissectible Machines system includes all the equipment required to perform the full range of student assignments. The system comprises two bench top frames. One holds all the individual components required to build the extensive range of Dissectible Machine. The second frame houses the workstation. It consists of a range of ac and dc meters, resistive and capacitive loads and power supplies. Dissectible Machine Set will be able to constret following machines: • Elementary AC and DC Generator, • DC Series Motor and Generator, • DC Shunt Motor and Generator • DC Compound motor and Generator • Single phase AC series universal motor, • Single phase AC Repulsion Motor. • Single phase AC Synchronous Motor/Generator • Single phase AC Generator • Three Phase AC Induction Motor : Squirrel Cage, 2 Pole and 4 Pole • Three phase AC synchronous Motor and generator • AC Brushless Generator, Stepper Motor • Shaded pole Induction Motor • Split field series motor, Dynamic Braking of a DC motor • Power factor correction of AC Motors • Synchronous motor V Curve Characteristics • Pole-Changing Induction Motor • DC Shunt Motor faults and Four pole Induction motor faults.	1				
26	Digital Multimeter of Rishabh or equivalent make: 3 ½ digit multimeter, AC voltage range : 0-1000V, AC current : 0-20A, DC Voltage : 0-600V, DC current : 0-20A, Resistance Range : upto 10 Mohm, Inbuilt short circuit protection.	10				

| 27 | **Solar PV Tracking System:**
➤ Solar PV Tracking System consists of solar panel of 50 Wp system should have dual axis lagging arrangement and tilt sensor **following experiments can be performed on the solar PV tracker system.**
1. Measurement of IV Characteristics of the module
2. Analyze the IV Characteristics at different series/parallel combinations.
3. Analyzes in the change of power at different orientation of modules to find the optimum tilt for a fixed collector.
4. Analyzes in the change of power at different orientation angles of modules in the direction of sun's movement to analyze the intraday variation.
5. Analyze the change in efficiency of modules at different incident angles.
6. Measurement of current-voltage characteristics of modules by varying load.
7. Analyze the IV characteristics at different series/parallel combinations.
8. Study the change in short circuit current with illumination.
9. Study the change in open circuit voltage with illumination.
10. Study the change in efficiency with illumination. | 1 | | | | |
| 28 | **Solar MPPT Training System:**
➤ Solar MPPT Training System consists of solar panel of 50 Wp, DC to DC converter with battery of 1.2V, 75AH system should consists of MPPT charge controller & PWM charge controller. **It should be designed shall a way that following experiments can be performed.**

1. Performance analysis of PWM and MPPT type charge controllers: a) Comparison between electrical parameters of module with and without MPPT. b) Charge in operating point of modules with and without MPPT with variation in load. c) Comparison between charging points of battery with and without MPPT
2. Study the effect of single axis tracking on power produced by the PV modules.
3. Study the effect of change in series/parallel box on the produced voltage and current.
4. Find out the efficiency of MPPT based charge controller.
5. Find out the efficiency of PWM based charge controller at different loads.
6. Find out change in efficiency of PWM and MPPT charge controllers with change in battery voltage (no load connected)
7. Find out the time taken by PWM and MPPT charge controllers to charge the battery from one state to another (needs controlled discharging of batteries as we are giving only 1 battery) | 1 | | | | |

29	**1-Phase energy Meter:** Direct connected, Single phase two wire, 230/240V (P-N), 5-30 Amp, Accuracy class 1, frequency: 50 Hz, Energy type Active and Apparent and Energy registration : Forwarded, import and export, Burden : 0.5 w and 1 VA, Current circuit : 0.1 VA	02				
30	**3-Phase energy Meter:** Direct connected, three phase four wire, 230/240V (P-N), 400/415 V (P-P) 5-30 Amp, Accuracy class 1, frequency: 50 Hz, as per standard burden, Energy type Active and Apparent and energy registration : Forwarded, import and export, Burden : 0.5 w and 1 VA, Current circuit : 0.1 VA	01				
31	Advanced full HD image streaming via HDMI, Smooth 30fps one-touch recording, Extended storage/playback options SDHC Card, 5MP Camera, 32x optical zoom, 30 fps 1080p Recording, Larger than A3 size, Shooting area, HDMI, Mini USB 2.0, VGA.	03				
32	19/20 ohm, 8 Amp range Rheostate for practical use only Make Toshniwal or equivalent	10				
33	360/350 ohm, 1.2 Amp range Rheostate for practical use only Make Toshniwal or equivalent	10				
34	700/750 ohm, 1.2 Amp range Rheostate for practical use only Make Toshniwal or equivalent	10				
	Camera System :					
35	Hikvision 2.0 MPHD IP Camera Dome Type DS2cd2110fi	16				
36	Hikvision 16 Ch NVR DS-7116NI-SN	01				
37	Hikvision 32 Ch DS-7132 NI-SN	04				
38	HDD 4 Tb WD Purple surveillance	02				
39	Cabling with Casing Capping, PVC Piping, PVC Camera Mount Box, without Material	At actual				
40	Configuration, Installation Camera with RJ-45 without Material	16				
41	8 port PoE giga switch (Nethave/Dlink)	04				
42	24 '' IPS Panel full HD (1080P) with bracket Samsung /LG	01				

2. **Central Computing Facility: -**

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	**Batteries** Supply & Installation of Exide NXT make Batteries 12V-100AH SMF with 3 Years warranty with **Buyback of Existing defective Batteries**	18				
2	**Desktop Computers** Intel i5 7400 or equivalent(3.4 GHz or higher, 6 MB Cache), Intel H110 chipset, 4 GB DDR4 Memory (2133 MHz), 4 DIMM slots, Expandable upto 32GB, 1 TB Hard Disk Drive (7200 RPM), Super multi DVD Burner, Not more than 300 Watt, autosensing, 85% PSU, Front ports : Two USB 3.0, microphone (stereo, 3.5mm), headphone (stereo, 3.5mm) Rear ports: Two USB 3.0, two USB 2.0, serial (9-pin), Ethernet (RJ-45), VGA, Display Port Rear audio ports Line-in (3.5mm), lineout (3.5mm), microphone (3.5mm), Minimum 2 PCI slot, Windows 10 Professional 64 Bit ENERGY STAR 6.1） (Need 85% PSU and Windows OS); EPEAT Gold rating ; GREENGUARD; RoHS-compliant, 19.5" Monitor, Resolutions 1440x900, Brightness 250 nits, Energy Star 6 or higher compliant, Small Form Factor/ Tower.	50				
3	**Chairs** Chairs with Gas Lift and Metal Base with PU Leather Rite/Fabric Tapestry Pushback Machanisum, 5 wheels, 62 x 58 x 96 cm. Sample will be shown at CCF	100				

3. **Hostel Department: -**

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	IP CCTV Camera Dome / Bullet •1/3" Progressive Scan CMOS 0.01 lux @F1.2, AGC ON 0 lux with IR • 2.8 mm @F2.0 • Digital WDR 3D DNR• 1080x720 • ONVIF, PSIA, **1.3 MP, megapixel** high resolution• HD real-time video •IR LEDs: up to 30m• IP66• PoE • Compact design .	7				
2	NVR- Network Video Recorder : 25 MBPS • Up to 1.3 Megapixels resolution recording • HDMI and VGA output at up to 1920×1080P resolution • 4-ch network cameras can be connected with 25MB incoming bandwidth • 1 SATA interfaces • Plug & Play • Support network detection, including network delay, packet loss, etc. Make :- Hikvision	5				
3	Hard Disk,4 TB SV edition enterprise class .SATA , 6 Gb/s 3.5 Inch IntelliPower , Cache 64 MB.	5				
4	Giga bite POE Network Switch: 4 Port Giga Bit POE switch,	5				
5	CAT6 UTP RJ-45 Connectors	30				
6	CAT6 UTP LAN Cable	500				
7	Cable fitting with casing patti,pvc pipe,Gang Boxes, wiremen labour,	500				
8	Configuration of NVR & Camera, NAT configure, Programming, Port Forwarding, Server registration, Cloud Activation , training, Web Connectivity, Mobile Connectivity Etc	5				

4. **College Premises: -**

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	**IP CCTV Camera Dome / Bulle**t • 1/3" Progressive Scan CMOS 0.01 lux @F1.2, AGC ON 0 lux with IR • **2.8 mm** /**6 mm** • Digital WDR 3D DNR• 1080x720 • **ONVIF**, PSIA, **1.3 MP**, megapixel high resolution• HD real-time video •IR LEDs: up to **30m/50m** • IP66• **PoE** • Compact design . Make :- Hikvision **3 year Warranty**	100				
2	IP CCTV Cube Audio Camera • HD1080P Video • Up to 10m IR • PIR • DWDR/3D DNR/BLC • Support On-board Storage, up to 128GB • 4mm@ F2.0, Angle of view: 85° • Audio Compression: G.711/G.722.1/G.726/MP2L2 • Audio bit rate: 64Kbps(G.711) /16Kbps(G.722.1)/16Kbps(G.726) /32-128Kbps(MP2L2 • • IP66• PoE • Compact design . Make :- Hikvision 3 year Warranty	6				
3	**NVR-** Network Video Recorder : **320 MBPS** • Dual-OS design to ensure high reliability of system running ANR technology to enhance the storage reliability when the network is disconnected • **Up to 12 Megapixels resolution recordin**g• Third-party network cameras supported• Support 2-ch HDMI, 2-ch VGA, HMDI1 at up to 4K(3840x2160) resolution • **Up to 64 IP cameras** can be connected with 320M incoming bandwidth • **8 SATA interfaces** • Support HDD hot swap with RAID0,1,5,6,10 storage scheme Plug & Play • S upport H.265/H.264/MPEG4 video formats • Support network detection, including network delay, packet loss, •Support various VCA detection alarm and VCA search etc.• Make :- Hikvision , **3 year Warranty**	2				
4	Hard Disk**, 4 TB SV edition enterprise class** . **SATA , 6 Gb/s 3.5 Inch** IntelliPower , Cache 64 MB.	8				
5	**Giga bite POE Network Switch**: **4 Port** Full Giga Bit POE switch+ 1 LAN (Each Port 15 Watts Power.)	9				
6	**Giga bite POE Network Switch**: **8 Port** Full Giga Bit POE switch+ 2 SFP Moduls (Each Port 15 Watts Power)	18				
7	CAT6 UTP RJ-45 Connectors	300				
8	CAT6 UTP LAN Cable	4400				

9	CAT-6 Cable fitting with casing capping , pvc pipe, Camera Mount Boxes, wiremen labour,	4400				
10	Samsung make LFD Display with Video Wall Support. 40" Size Full HD	2				
11	Configuration of NVR & Camera, NAT configure, Programming, Port Forwarding, Server registration, Cloud Activation , training, Web Connectivity, Mobile Connectivity etc	2				
12	I Clock X990 Biomatric . 32 Bit Microprocessor . User :- 10,000 . Card Capacity :- 10,000, Tranjaction Storage :- 2,00,000. Lan + USB Port. Inbuilt Battery + Metal Case .Software Include.	25				

5. **Applied Mechanics Department: -**

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	**Desktop Computers/Laptops with latest configuration for PG Research Lab (SHM)** Intel i5 7400 or equivalent(3.4 GHz or higher, 6 MB Cache), Intel H110 chipset, 4 GB DDR4 Memory (2133 MHz), 4 DIMM slots, Expandable upto 32GB, 1 TB Hard Disk Drive (7200 RPM), Super multi DVD Burner, Not more than 300 Watt, autosensing, 85% PSU, Front ports : Two USB 3.0, microphone (stereo, 3.5mm), headphone (stereo, 3.5mm) Rear ports: Two USB 3.0, two USB 2.0, serial (9-pin), Ethernet (RJ-45), VGA, Display Port Rear audio ports Line-in (3.5mm), lineout (3.5mm), microphone (3.5mm), Minimum 2 PCI slot, Windows 10 Professional 64 Bit ENERGY STAR 6.1）(Need 85% PSU and Windows OS); EPEAT Gold rating ; GREENGUARD; RoHS-compliant, 19.5" Monitor, Resolutions 1440x900, Brightness 250 nits, Energy Star 6 or higher compliant, Small Form Factor/ Tower. **All-in-one Multifunction Printer:** Print, Scan, Copy, Duplex, Processor 600 MHz , Ram: 128 MB. Interface Hi-Speed USB 2.0 / Ethernet 10/100 Base TX, Duty Cycle: 15000 pages , Speed : Up to 28 ppm in A4 (29 ppm in Letter) , First Print : Less than 8.5 seconds (From Ready Mode), Resolution: 4,800 x 600 dpi effective. Duplex Print: Auto Duplex Print	10 1				
2	Structural Analysis Software : Abacus	1				
3	Up gradation of Stad pro and Midas Software	1				
4	LCD Projector - wall mounted	2				
5	Pile load test equipment with self supporting arrangement	1				
6	Rapid Chloride penetration test equipment	1				
7	Jib Crane Apparatus', Law of Friction Apparatus, Geared Pulley Block, Parallelogram Law Apparatus, Fleture Trolley Apparatus, Law of Movement Apparatus, Bell cracnk Lever Apparatus, Simply Supported beam (Digital), Simple Screw Jack Apparatus, Polygon Law of Forces	1				

6. **Information Technology Department: -**

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	EDUTECH make - Advanced Parallel Processing Embedded Platform (Proprietary Item): Processing components include: dual-core NVIDIA Denver2 + quad-core ARM Cortex-A57,256-core Pascal GPU, 8GB LPDDR4, 128-bit interface, 32GB eMMC, 4kp60 H.264/H.265encoder & decoder, Dual ISPs (Image Signal Processors), 1.4 gigapixel/sec MIPI CSI Camera ingest, • Ports and Peripherals include: HDMI 2.0, 802.11a/b/g/n/ac 2×2 867Mbps WiFi, Bluetooth 4.1,USB3, USB2, 10/100/1000 BASE-T Ethernet, 12 lanes MIPI CSI 2.0, 2.5 Gb/sec per lane, PCIegen 2.0, 1×4 + 1×1 or 2×1 + 1×2, SATA, SD card, dual CAN bus, UART, SPI, I2C, I2S, GPIOsetc., • Accessories include: 1TB USB hard disk with preloaded Linux Image & Eco System configured to work with Embedded GPU Board. 1/3/5 quantity each of USB hub, USB mouse and USB Keyboard	1				
2	VM view License VMware Horizon Standard provides simple powerful VDI. 1 License for 3 years	1				
3	Arduino Uno R3 Board	30				
	Female/Male Jumper Wires for Arduino/Raspberrypi/Robotics - 40 x 8"	20				
	Male/Male Jumper Wires for Arduino/Raspberrypi/Robotics - 40 x 8"	20				
	Female/Female Jumper Wires for Arduino/Raspberrypi/Robotics - 40 x 8"	20				
	RC522 RFID Reader/Write For Arduino	10				
	Triple Axis Accelerometer ADXL335 for Arduino/Raspberry-Pi/Robotics	10				
	CMOS Camera (OV7670) Module for Arduino/Raspberry-Pi/Robotics	5				

	Ultrasonic Sensor Module HC-SR04 for Arduino/Raspberry-Pi/Robotics	10				
	Infrared distance sensor 0A41SK / GP2Y0A41SK0F for Arduino/Raspberry-Pi/Robotics	5				
	MQ2 LPG Butane Hydrogen Gas Sensor for Arduino/Raspberry-Pi/Robotics	10				
	MQ3 Ethanol Alcohol Gas Sensor for Arduino/Raspberry-Pi/Robotics	10				
	Gas Sensor Breakout Board for Arduino/Raspberry-Pi/Robotics	10				
	MQ7 Carbon Monoxide Gas Sensor for Arduino/Raspberry-Pi/Robotics	10				
	GPS Module Cirocomm for Arduino/Raspberry-Pi/Robotics	5				
	GSM GPRS SIM900A module with Stub Antenna and SMA connector for Arduino/Raspberry-	5				
	PIR Motion Detection Sensor HC-SR501 for Arduino/Raspberry-Pi/Robotics	10				
	IR Proximity Sensor for Arduino/Raspberry-Pi/Robotics	10				
	16x4 Character LCD Display For Arduino/Raspberry-Pi/Robotics	10				
	Light Sensor (LDR) for Arduino/Raspberry-Pi/Robotics	10				
	Soil Moisture Sensor	10				
	Water Detector Sensor Module	10				
	BMP280 I2C or SPI Barometric Pressure & Altitude Sensor	5				
	Digital Touch Senso	10				
	Temperature Sensors Module for Arduino/Raspberry-Pi/Robotics	10				
	HC-05 Wireless Bluetooth RF Transceiver Module Serial/TTL/RS232 for Arduino	10				
	ESP8266 WiFi module Arduino	10				
	9V battery snap power cable to DC 9V clip male line battery adapter suitable for arduino	10				
	9V HI-Watt Battery	10				
	Raspberry Pi 3	10				
	5V - 4 channel relay module	10				
4	Desktops Dell Optiplex 3050, Core I5 7Th Gen, 4GB RAM, 1 TB HDD, 19.5 Inch Monitor with Keyboard, Mouse, Win 10 Pro, 3 Years Onsite Warranty or Equivalent (preferable alternative HP)	30				
5	Canon image RUNNER iR 2004N using buy Back of Canon image RUNNER iR 2016	1				

7. Mechanical Engineering Department: -

Item No.	Particulars		Approx. Qty Q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	**Intel core i-5 650 Desktops** Specifications		15				
	Form Factor	Tower					
	Processor	Intel Core i5-6500 3.2G 6M 2133 4C CPU					
	Chipset/Motherboard	Intel H110 chipset					
	Memory	4 GB DDR4 Memory (2133 MHz), expandable upto 32 GB DDR4-2133 SDRAM 5 Transfer rates up to 2133 MT/s					
	Hard Disk Drive	1 TB Hard Disk Drive (7200 RPM)					
	Optical Drive	Slim SATA Super Multi DVD writer; Slim SATA DVD-ROM					
	Power Supply	180 W standard efficiency; 180 W standard efficiency, active PFC; 180 W, up to 85% efficient, active PFC; 300 W standard efficiency, active PFC					
	Ports	Front: 2 USB 2.0; 1 microphone/headphone combo Back: 4 USB 2.0; 2 USB 3.0; 1 audio line in; 1 audio line out; 1 DVI-D; 1 VGA; 1 RJ-45; 2 PS/2 (optional); 2 serial (optional); 1 parallel (optional)					
	Slots	Minimum 2 PCI slot					
	Operating Systems	Windows 10 Professional 64 Bit					
	Certifications	ENERGY STAR® certified and EPEAT® Silver registered configurations available					
	Drive Bays	One 5.25" ODD; One 3.5" HDD; One 3.5" HDD (optional)					
	Display	18.5" Monitor, Resolutions 1440x900, Brightness 250 nits, Energy Star 6 or higher compliant					

	Security Features	Trusted Platform Module (TPM) 1.2; Security cable slot					
	Make	Dell Only					

2	**Upright Metallurgical Microscope –**
	
	Excellent infinite Optical System. High Magnification Objective with Long Working Distance Comfortable and Enjoyable Operation With low and Repetitive Position Control knob. Triangle Structure Make it much steadier and less working Space Occupation. Easy, Safe and Reliable Lamp Replacement Device
	Specification:
	Viewing Head Trinocular Head
	Eyepiece WF10×/18 with 0.1mm Micrometer& Cross Hair
	Objective Infinitive plan achromatic strain free objectives
	        4×/0.1/∞/- WD 17.3mm
	        10×/0.25/∞/- WD 10.0mm
	        20×/0.40/∞/- WD 5.8mm
	        50×/0.75/∞/- WD 0.32mm
	        100×/0.80/∞/0 WD2mm
	Nosepiece Quadruple Nosepiece
	Stage Double layer mechanical stage150×140mm/75×50mm
	
	Focusing Coaxial Fine & Coarse Adjustment
	Illumination Kohler Illumination, Epi-illuminator with iris aperture diaphragm and iris field diaphragm, 6V/20W Halogen Lamp, Brightness Adjustable
	    Diascopic Illumination, 6V/20W Halogen Lamp, Brightness Adjustable
	Filters Blue, Green, Yellow & Ground Glass
	    Polarization Set
	    Warranty – 1 yr thereafter AMC
	    Local supplier will be preferred
			3 No.s				

3	**MIG/MAG Welding system** Digital Microprocessor Linux based 'Skill Independent" MIG.MAG welding equipment (Gas cooled) 4.0 – Intelligent TPS320i pulse type, standard process – MIG/MAG welding system along with MIG Torch, TIG Torch, MMAW Torch, earth cable and accessories like wear part kit, rollers etc	**1**				
4	**Purchase of PLC Trainer, Microprocessor, Microcontroller trainer kit** PLC with suitable input and output to perform following modules (1 to 12 as below)for various experiments in the lab: (1) Three road crossing unit compatible with selection of internal/ external pulse, option to control from PLC and microcontroller, inbuilt power supply, LEDs/ push buttons, MS powder coated box, polycarbonate panel. HMI compatible. (2) Four road crossing unit compatible with selection of internal/ external pulse, option to control from PLC and microcontroller, inbuilt power supply, LEDs/ push buttons, MS powder coated box, polycarbonate panel. HMI compatible. (3) Passenger lift cum elevator application compatible with selection of internal/ external pulse, option to control from PLC and microcontroller inbuilt power supply, LEDs/ push buttons, MS powder coated box, polycarbonate control panel. Motor controller, limit switches. Power supply for motor controller, at least 3 story lift, lead screw mechanism, motor mounting, HMI compatible. (4) Annunciator system compatible with selection of internal/external pulse, option to control from PLC and microcontroller. a) Temperature with the help of RTD, b) Open or closed door (with the help of micro-switch), c) Liquid level with the help of level sensor, d) Load with the help of load cell. All these parameters can be set with the help of set potentiometers on the panel of the system. Also, all the required electronics is included for signal conditioning of various parameters. Appropriate test points are to be provided on the panel.HMI compatible. (5) Simple resistance welding and repeat resistance welding, compatible with selection of internal/ external pulse, option to control from PLC and microcontroller. These two applications share common hardware like relay for solenoid valve and relay for welding operation. A toggle switch identifies the	**1**				

repeat mode of welding operation.

The system includes a pressure regulator, solenoid valve, two port pneumatic cylinders, demo electrode system Entire operation of resistance welding specially complete control logic can be fully demonstrated (except actual welding operation). The system has built in power supplies and compressor. HMI compatible.

(6) Human machine interface (HMI) compatible with PLC and microcontroller at least 7 inch capacitive touch screen, ethernet+RS-232 port, USB port for programming, freeware emulator + programming, with +24V DC power supply, MS powder coated box

(7) Fluid mixer trainer based with different colour of fluids (at least 4 Nos.), appropriate tank capacity, Main tank with stirrer, Solenoid valve controlled, Pump, sump, polycarbonate front panel, Ms powder coated box, LED indicator, sequential control system, float based level control for main tank. Option to control PLC and microcontroller.HMI compatible.

(8) Spray painting trainer with two-axis movement, different spray patterns, valve and relay based control. Motor based movement, good quality spray gun, object holder etc. Option to control PLC and microcontroller.HMI compatible.

(9) Colour sensor based object/ coin sorting machine with automated feeder and sorting, counter, buzzer, Polycarbonate front panel with MS power coated box. Option to control PLC and microcontroller.HMI compatible.

(10) XY plotter trainer with XY movement mechanism, feedback mechanism, plotting mechanism, inbuilt power supply for motors, holder, compatible with PLC, polycarbonate panel and MS powder coated box. Option to control PLC and microcontroller.HMI compatible.

(11) Pick and place trainer with solenoid based gripper, arm, conveyer, Sensors for object detection, counter, pick and place movement using PLC, with index mechanism, batch or continuous mode, inbuilt power supply for motor and MS powder coated box and Polycarbonate panel.Option to control PLC and microcontroller.HMI compatible.

(12) Coffee/ Tea Vending machine Trainer with solenoid valve based, Pump, sump, LCD display and counter, buzzer, Flow control, cup sense, inbuilt power supply for motor, polycarbonate front panel, MS powder coated box. Option to control PLC and microcontroller.HMI compatible.

(13) 8085 Microprocessor trainer kit

(14) 8051 Microcontroller trainer kit
(15) PIC Microcontroller/ Arduino with DI/ DO (relay/ transistor), analog input, ethernet, compatible with HMI, power supply, panel, MS powder coated box, connecting cable, communication cable, programming software.
(a) Six road crossing traffic light controller using microcontroller.
(b) Web enabled automatic door open/ closed system trainer, with web enabled microcontroller based automatic control and monitoring, with inbuilt power supply for motor, driver, sensor, polycarbonate panel, MS powder coated box.

Terms conditions, Installation and Training:
(1) Pre-installation inspection should be arranged at supplier's end for at least 2 persons by the party.
(2) Commissioning/ Installation in all respect at WCE lab and 1-2 days application oriented training at WCE should be done by the Party.
(3) Relevant accessories, software their drivers, cablesetc. entirely must be supplied.
(4) No deviation is accepted from above mentioned specifications.
(5) In case of dispute, persons appointed by WCE will act as Conciliator.
(6) Payment will be made after issue of completion certificate by the WCE engineer to the supplier and subsequent bill is submitted by the contractor.
(7) Quoted costs should be inclusive of all charges of packaging and forwarding, insurance etc. and the taxes as applicable for Sangli municipal corporation (GST etc.)
(8) Warrantee in all respect for minimum 3 (three) years
(9) Servicing / overhauling / maintenance call at WCE campus must be attend free of charge during warrantee period as and when required in three years
(10) Hard and soft copy of manual must be supplied

5	**Torque Measurement Setup-** Torque measurement setup consisting of static and dynamic torque measuring capability of 500 Nm.	**1**					
6	**Variable Frequency Drive -** Input voltage 220. Single phase 50 Hz frequency Output 10Hz to 100Hz with 500 W capacity.	**1**					

7	**3D Printer with necessary accessories and workstation**	1				
	A) 3D Printer: 3D printer should have minimum following requirements, (1) Based on Fused Deposition Molding Technology (2) Build Platform cum minimum build size 500mm X 500mm X 500mm (X-Y-Z direction) which should be removable for easy print handling (3) Nonmoving (stationary) heated bed upto 80^0C with removable glass build platform for easy print handling. (3) Minimum feature size 2mm X 2mm X 2mm (4) Minimum 2 number of extra extruders should be supplied with machine (5) Minimum dual extruder upgradable to quad extruder (with soluble support material) and Direct drive technology for wider material options and Upgradable to active cooling mechanism. Filament diameter maximum 1.75 mm. (6) Layer thickness/ height 100 to 250 microns (7) Printed output accuracy +/- 80 to 150 microns (8) Positional accuracy 6 microns in both horizontal axis (9) Deposition rate minimum 30 gm/hrs (10) Printer made up with enclosed metallic chamber with easy to access transparent doors. Chamber should have capability to heat inside air temperature up to 35^0C (11) Extruder mechanism should have minimum frictional losses (in X-Y-Z direction) and movement should with the help of ball-screw type mechanism. (12) Model material Supported: ABS – High strength engineering grade plastic for all kind of prototypes. PLA – Biodegradable plastic for casting, disposable, disposable containers etc. PP – Fatigue resistant plastic for flexible prototypes. Carbon Fiber– Carbonate plastic for strong & tough prototypes. PETG – Clear thermoplastic for beverage, food and other liquid containers. HIPS – Soluble thermoplastic for printing support structures ULTEM- High temperature material for casting application (13) Dual color print or dual material print (14) Printed part strength should be minimum 35 MPa supported by authorized lab test reports (tests as per ASTM D638)					

(15) Power requirements (if any) for suitable voltage with stabilizer unit capability suitable for printer and scanner (Range 110 to 300V with +/- 3 Volts) and all other related equipments

(a) 3D Scanner with suitable turntable and tripod

3D scanner should have minimum following specifications:

(1) Free scan accuracy: 50 microns

(2) Scan volume with turn table minimum 250X250X250 mm

(3) Scan volume (free scan) minimum 4000 X 4000 X 4000 mm

(4) Maximal Image Throughput: 15 frames per second

(5) Light source: White light LED

(6) Camera Resolution minimum 1.3Mp

(7) Scanning speed with Turntable: 3 to 5 minutes for 360^0 rotation

(8) Suitable tripod for holding scanner

(9) Handled HD Scan, Handled Rapid Scan, Auto Scan, Free Scan options should be available

(11) Wired and Wi-Fi connectivity should be available

(12) Part size range to be handled: 30 mm to 4000 mm

(13) Spatial X/Y resolution at 1m: 0.035mm

(14) Scanner should be made available with compatible legal software, which should be ready to use for the entire setup of 3D printer

(b) Other necessary facilities

(1) Anti-vibration table should be of appropriate size (W*L*H) and super finish industrial top to perform the experiments/ prototyping. At bottom side of that table there should be sufficient storage space available with necessary locking arrangements. Proper leveling system should be provided.

(2) Following consumable material should be provided with 3D printer to perform experiments/ job:

(a) ABS: Natural colour: 3 kg, Red: 1 kg, Blue: 1kg, Green: 1kg

(b) PP: 2kg

(c) HIPS: Natural colour: 3 kg

(d) Carbon Fiber: Black colour 2kg

(e) PETG: Natural colour: 2 kg

(f) ULTEM: Natural colour: 1 kg

(3) Sample jobs like human dress (height at least 3.5 feet), string musical instruments, ball- roller bearings, complicated shapes and at least 20 other jobs for display with appropriate storage/ showcase (approx. 5.5ft height X 3ft

width X 1.5ft depth in size, glass at front side, 3 units). Jobs manufactured by the same machine only.

(B) Workstation (For handling 3D printer, 3D scanner and other allied systems) with legal software:

(1) Operating System: Minimum Microsoft Windows 7 (SP1), 64-bit or greater compatible to supplied hardware or equivalent for system supplied

(3) Intel® Core™ i7, octa core, 3Gz or Greater

(4) RAM Minimum: 16GB or Greater

(5) Hard Disk: Minimum 500 GB HDD and 1 TB portable

(6) Video display adapter: Minimum: 1024x768 or greater resolution at 96 dpi, 1280x 800 or greater at 120 dpi, 128MB or greater memory, support for DirectX 9.0 or greater. Recommended: 1680x1050 or greater resolution, 256MB or greater memory, or integrated Intel HD graphics, support for DirectX 9.0 or greater. Video Accelerator Memory: Minimum 2GB

(7) Printer, to print hard copy of drawing/ report and scanner, to scan drawing/ reports

Above mentioned configuration is minimum required for workstation. If any additional features are required to be handled for workstation to scan and/ or print job, those should be incorporated in above mentioned specifications.

(8) Legal software:

All necessary system as well as application software should be provided along as legal software. At least one copy of antivirus protection (minimum 3 years) should be provided.

Terms conditions, Compatibility, Installation and Training:

(1) Supplier should be equipment manufacturer (for printer and scanner) or authorized dealer from manufacturing company only. Certificate of such proof is necessary to be submitted along with tender form.

(2) The above equipments including 3D Printer, Scanner, Workstation, Worktable etc. and all relevant accessories, software their drivers, cables entirely must be supplied from the same vendor (supplier) as solo and should be compatible with each system.

(3) Pre-installation inspection should be arranged at supplier's end for at least 2 persons by the party.

(4) Commissioning/ Installation in all respect at WCE lab and 1-2 days application oriented training at WCE should be done by the Party.

(5) No deviation is accepted from above mentioned specifications.

	(6) In case of dispute, persons appointed by WCE will act as Conciliator. (7) Payment will be made after issue of completion certificate by the WCE engineer to the supplier and subsequent bill is submitted by the contractor. (8) Quoted costs should be inclusive of all charges of packaging and forwarding, insurance etc. and all the taxes as applicable for Sangli municipal corporation (Import duty {if applicable}, GST etc.) (9) Warrantee in all respect for minimum 3 (three) years (10) Servicing / overhauling / maintenance call at WCE campus must be attend free of charge during warrantee period as and when required in three years (11) Proper tools/ tool box should be provided for general maintenance of all above equipments (12) Hard and soft copy of manual must be supplied (13) Delivery period maximum 8 week.					
8	CANON LBP6030W (Laser jet printer)	4				

8. Computer Science & Engineering

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	**NETSIM – Network Simulator for 10 Users, Academic version 9.1 or higher)** Protocols : 1. Aloha, Slotted Aloha, 2. Token Bus, 3. Token Ring, 4. CSMA / CD, 5. Fast and Gigabit Ethernet, Switching, 6. Wireless LAN - 802.11 a / b / g, 7. Routing - RIP, OSPF, BGP 8. Mobile Adhoc Networks (MANET) 9. Wi-Max 10. GSM, CDMA 11. Wireless Sensor Network (WSN) 12. Zigbee 13. Internet of things (IOT) 14. Cognitive Radio 15. Long Term Evolution (LTE) Network Programming Exercises in "C" 26 exercises including ARP, CIDR, cryptography, Distance vector routing Error correction codes, Error detection codes, Framing sequence, MLMA, PC to PC communication Scheduling, shortest path, Transmission flow control I	1				
2	**NETSIM – Standard (Research) Version 9.1 or higher – For ME / PG /Research /PHD: Component 1 (Single User)** Inter-Networks Ethernet - Fast & Gigabit, ARPWLAN - 802.11 a, b, g , n, ac and e Propagation – Free space, Lognormal, Rayleigh IP v4, Firewalls Routing - RIP, OSPF Queuing - Round Robin, FIFO, Priority TCP, UDP Protocol Primitives C Source Code Library Common Modules Applications (Traffic Generator): Voice, Video, FTP, Database, HTTP, Email, Peer-to-peer and Custom Encryption - AES, DESVirtual Network Stack , Simulation Kernel Command Line Interface, Metrics Engine with Packet Trace and Event Trace. Packet Animator External Interface Wireshark and MATLAB interfaces	1				
3	**LCD Network Projector: Epson EB X36 LCD Projector with network port or equivalent, Specifications:** Light Output: 3600 Lumens, HDMI Input, Life of Lamp - Full Usage: 10000 Hours, Life of Lamp - Eco Usage: 5000 Hours, Contrast Ratio: 15000:1, Throw Ratio: 1.40 to 1.68, Aspect Ratio: 12/30/1899 4:03:00 AM, Resolution: XGA(1024x768), Audio Output: 2 Watts, Projector Lens: Optical Zoom (Manual) or Focus (Manual)	1				

4	Smartphone with android operating system	1				
5	USB 2.0 to RS232 serial db9 driver	1				
6	DC Motor	1				
7	Relay	1				
8	GSM SIM900 Module	1				
9	EDUTECH make - Advanced Parallel Processing Embedded Platform Consisting of: Basic Embedded GPU Board and Accessories (USB hard disk with pre-loaded Eco System, USB Keyboard, USB Mouse, USB Hub) Specifications: • Processing components includes: dual-core NVIDIA Denver2 + quad-core ARM Cortex-A57,256-core Pascal GPU, 8GB LPDDR4, 128-bit interface, 32GB eMMC, 4kp60 H.264/H.265encoder & decoder, Dual ISPs (Image Signal Processors), 1.4 gigapixel/sec MIPI CSI camera ingest, • Ports and Peripherals includes: HDMI 2.0, 802.11a/b/g/n/ac 2×2 867Mbps WiFi, Bluetooth 4.1,USB3, USB2, 10/100/1000 BASE-T Ethernet, 12 lanes MIPI CSI 2.0, 2.5 Gb/sec per lane, PCIegen 2.0, 1×4 + 1×1 or 2×1 + 1×2, SATA, SD card, dual CAN bus, UART, SPI, I2C, I2S, GPIOsetc., • Accessories includes:1TB USB hard disk with preloaded Linux Image & Eco Systemconfigured to work with Embedded GPU Board. 1/3/5 quantity each of USB hub, USB mouseand USB Keyboard	3 Sets				
10	**All-in-one Multifunction Printer:** Print, Scan, Copy, Duplex, Processor 600 MHz , Ram: 128 MB. Interface Hi-Speed USB 2.0 / Ethernet 10/100 Base TX, Duty Cycle: 15000 pages , Speed : Up to 28 ppm in A4 (29 ppm in Letter) , First Print : Less than 8.5 seconds (From Ready Mode), Resolution: 4,800 x 600 dpi effective. Duplex Print: Auto Duplex Print	3				
11	**Flatbed Scanner:** Flatbed scanner, Scan resolution: 2400 x 4800dpi , Scan speed (A4, 300dpi): approx. 16secs.4 buttons (PDF, AUTOSCAN, COPY, SEND) USB 2.0 Hi-Speed	1				
12	**24 port 10/100/1000Base-T ports + 4 SFP ports Web Smart Switch** Port Standard & Functions :- IEEE 802.3 10BASE-T Ethernet, IEEE 802.3u 100BASE-TX Fast Ethernet, IEEE 802.3ab 1000BASE-T Gigabit	1				

	Ethernet, IEEE 802.3x Flow Control support for Full-Duplex Mode, Number of Ports :- 24 10/100/1000 Mbps, 4 SFP , Switching Capacity :- 56 Gbps						
13	IOT Trainer Kit EDUTECH Make INTERNET OF THINGS (IOT) LAB -- Set for 5 or equivalent Specifications: All in One General Purpose Board, IOT Gateway, Bluetooth Module, Router, A set of Sensors, IDE Configured for IoT Programming, DC Motor, 2Kg Torque Stepper Motor, Workbook	5 sets					
14	CDAC IoT Research lab setup Kit CDAC Ubimote Wi-Fi Mote BLE mote WINGZ Ubi-Sense Ubi-DAQ Debugger or equivalent	10					
15	RFID Tags: RFIDeas or equivalent Intermec's flexible RFID Smart Labels and tags provide a versatile architecture that can be used in open or closed loop environments. Thermal transfer or direct thermal printing and chip encoding enable on demand generation of durable RFID labels and tags that can be deployed with confidence to meet a broad range of customer requirements	25					
16	RFID Reader: RFIDeas or equivalent Specifications: RF HYPERLINK "http://www.barcodesinc.com/r f-ideas/part-rdr-7582aku.htm" HYPERLINK "http://www.barcodesinc.com/r f-ideas/part-rdr-7582aku.htm" RFID Reader AIR ID RF IDEASD READER,	4					
17	RFID Software: RedBeam or equivalent Specifications: Android support apps for Inventory, Asset Tracking, Surveillance, Printing	1					
18	Beacons (Analyse what sections of your store get the most traffic.) : Blesh CMS SDK kit UriBeacon or equivalent Online Specifications: Dev Kit with 3 Beacons V2.0 UriBeacon firmware Ready for prototyping, Plug &Play iOS and Android compatibility	4					
19	RFID Wristbands/ MI bands (multi activity): BCI or equivalent Specifications: New PDC Smart Woven RFID Wristbands are the ultimate multiday, high-	1					

	security event management solution! The special mix of nylon and cotton materials creates wristbands that are soft and extremely comfortable to wear. The combination of precise, multi-color weaving of custom graphics, a high-strength plastic one-way sliding closure and integrated RFID slider result in wristbands that are secure, non-transferable and impossible to counterfeit!					
20	Raspberry Pi 2 Complete Starter Kit - - Includes Raspberry Pi 2 900 MHz: Online Ebay or from supplier Specifications: Raspberry Pi 2 900 MHz QuadCore CPU (1GB) -- Edimax EW- 7811Un Wi-Fi Adapter -Clear Case--Power Supply--Kingston 8GB Micro SD Card and Micro SD to SD Adapter--HDMI Cable and Heatsink. XBMC Media Player Pi 2 Model B (Latest Version Released on 2 2 2015) Pi 2 - Model B Raspberry Pi Enclosure Case (Clear)-- Mounting slot and screws for a raspberry pi camera module 5-Feet Long 6FT High Quality HDMI Cable Edimax EW- 7811Un 150Mbps 11n Wi-Fi USB Adapter XBMC Heatsink for Raspberry Pi - Set of 2 Heat Sink	2				
21	MATRIX IoT Toolkit with 15 sensors for Smart office automation: MATRIX Online	1				
22	Drones with remote control: Online @ Amazon or from vendor BLADE 180 QX or equivalent HD quadcopter with SAFE™ Specifications: (Sensor Assisted Flight Envelope) technology	1				
23	GPS tracker with navigation system: EROCKET/DYTEC H or equivalent Online or from vender	2				
24	eZ430- Chronos - Wireless development tool in a watch from Texas Instruments or equivalent smart watch: Texas Instrument Online or from vender	1				
25	**2KVA UPS with SMF batteries with Installation:** Specification: Sine Wave UPS, 2KVA / 24 V DC with Dual Micro Controller, with output isolation transformer, Warranty – 24 Months Battery Quanta SMF, 100AH or equivalent Warranty – 24 Months	1				
26	Stainless Steel Visitor's Chair with seat back and hand rest	110				
27	IP CCTV Camera Dome / Bullet •1/3" Progressive Scan CMOS 0.01 lux @F1.2, AGC ON 0 lux with IR • 2.8 mm@F2.0 • Digital WDR 3D DNR•	8				

	1080x720 • ONVIF, PSIA, 1.3 MP, megapixel high resolution• HD real-time video •IR LEDs: up to 30m• IP66• PoE • Compact design Make :- Hikvision or Equivalent						
28	**IP based 1080P(Full HD) PTZ** CP-UNP – 4212T, 2 MP Full HD IP PTZ Camera with power supply or equivalent features: • 1/3" COMOS Image Sensor • Powerful 12X Optical & 16X Digital zoom • Max 25/30 FPS@1080P Resolution • 5.1mm ~ 61.22mm, Pan range:360 degree endless, speed up to 300 degree /s • DWDR, Day/Night (ICR), DNR (2D, 3D), Supports PoE, IP66 • Mobile Software: iCOMB, gCMOB, wCOMB, CMS Software: KVMS Pro, vOptimus Pro **Warranty: 3 years**	1					
29	NVR- Network Video Recorder : 25 MBPS • Up to 2 Megapixels resolution recording • HDMI and VGA output at up to 1920×1080P resolution • 4-ch network cameras can be connected with 25MB incoming bandwidth • 1 SATA interfaces • Plug & Play • Support network detection, including network delay, packet loss, etc. Make :- Hikvision or Equivalent	2					
30	Hard Disk,4 TB SV edition enterprise class .SATA , 6 Gb/s 3.5 Inch,Cache 64 MB.	2					
31	Giga bite POE Network Switch: 5 Port Giga Bit POE switch,	2					
32	CAT6 UTP RJ-45 Connectors	28					
33	Configuration of NVR & Camera, NAT configure, Programming, Port Forwarding, Server registration, Cloud Activation , training, Web Connectivity, Mobile Connectivity Etc	2					
34.	Branded water cooler 100 Ltr.storage capacity with UV filter, stainless steel body, 50ltr. + 50 ltr cooling per hour with installation and commissioning charges with all necessary plumbing work, labour and all required hardware material or equivalent	1					
35.	Public Address System (PA System): Ahuja make DPA-770 amplifier or equivalent	3					

	75 WATTS including USB player					
36.	Public Address System (PA System): Ahuja make AWM-520VHL PA VHF Wireless Microphone or equivalent	3				
37.	Public Address System (PA System): PA Gooseneck Microphones: GM-611M or equivalent With base unit GMB-6C	1 1				
38.	Public Address System (PA System): Headband Microphone: HBM-50 or equivalent	3				
39.	Public Address System (PA System): 2-Way Compact PA Wall Speakers: PS-400T or equivalent	12				
40.	Public Address System (PA System): For Mini-CCF Professional VHF Wireless PA Microphone: AWM-520V2 or equivalent	1				
41.	Public Address System (PA System): Wiring, Fitting and System Installation	For 3 Class-Rooms				
42.	Sensors for smart applications: Magnetic, Geometric, Ultrasonic, Rene mote, Mica mote, Panda Card, IRIS motion, IRIS contact, MUSE Headband, Remote cars etc. etc.	25				
43.	U-RAM 4GB DDR-III 1333 MHz, with installation and with three year's warranty for Mini-CCF, Qty. 5 Nos.	5				
44.	SMPS HP Branded 6 pin compatibility, with installation and with three year's warranty for Mini-CCF, Qty. 6 Nos.	6				
45.	SMPS HP Compaq 8100 Elite CMT PC (HP make or compatible) with installation and with three year's warranty for Advanced Software Engg Lab, Qty. 10 Nos.	10				

9. Civil Engineering

Item No.	Particulars	Approx. Qty Q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	**pH meter (2 Nos)** pH-range 0.00 to 14.00, resolution 0.01, relative accuracy ± 0.01, mV-range -1999 to 1999 mV, resolution 1, relative accuracy ± 1, Temperature range 0.0 to 50.0°C, resolution °C 0.1, Temperature accuracy °C ± 0.5 Calibration Max. 3 point, Display LCD Power supply 100-240V/50- 60Hz, 9VDC Interface (RS232), Data storage 99 measurements, Temperature compensation , LE438pH electrode, electrode arm,2 X 4.01 & 2 X 7.00 buffer sachets Make: Mettler/Hach or equivalent	2				
2	**Heating block NANOCOLORVARIOC2 (COD digester)** Make: MN, Germany Technical Specifications: Type: Programmable heating blocks for chemical-analytical digestions with 12 holes / for test tubes with 16 mm OD (outer diameter) / integrated protective lids Display: Coloured, backlit LCD touch screen Operation: Display menu guidance via touch screen Temperatures: 5 pre-programmed temperatures: 70 / 100 / 120 / 148 / 160 °C 7 free memory locations for individual temperature settings Temperature range: 40 – 160 °C	1				
3	**Flocculation coagulation jar test apparatus** The rotation speed can be programmed from 10 to 300 rpm, with 1 rpm intervals, time remaining can be set to hours or minutes Construction material: epoxy painted metal structure, Number of stirring rods: 4 Stainless steel stirring rods: adjustable in height by a self blocking chuck Back panel, Dis-connectable lighted DC gear motor Mono-selector: same speed for each rod Power: 19 W, Power supply: 115 V or 230 V / 50-60 Hz Electronic speed control: from 10 to 300 rpm, Speed setting interval: 1 rpm, Microprocessor controlled timer: 0 ÷999 min or 0 ÷99 hours (or continuous)	1				

4	**Tension Controlled Field Lysimeter** smart field lysimeter with necessary sensors including lifting and turning device for SFL-Lysimeters contains: Tripod,height 2 m,chainpull250kg lift chain shortened to 1.6m,chain suspension with steel bar and lifting rings.in wooden box 24X24X160cm,weight 35 kg	1				
5	**Weather Monitering Station Solar** panel assisted wind and temp/humidity sensore, Data logger (up to 291 days memory), long distance transmission 100m,Indoor/outdoor temperature and humidity with trend indicators, weather forecast, Barometric pressure with bar graph, Rainfall reading with bar graph, Heatindex, wind chill and dew-point temp.max & min memory, UV measurement (with optional UV sensor),USB communication hub for PC download	1				
6	**Soil Hydrometer** and Hydrometer Glass Jars(12 no.s) Soil Hydrometers Marked from 0.995 to 1.030 gm/cc, calibrated at 27oC (6 Nos), Hydrometer Glass Jars : 1000 cc capacity, without pour out, complete with rubber bung (12 Nos)	6				
7	**Motorized High speed stirrer** With speed of 8000-10000 rpm, complete with brass dispersion cup	1				
8	**Constant Temperature Water Bath** 60 cm x 30 cm x 38 cm deep complete with heater, thermostat and agitating unit capable of maintaining temperature at 27oC	1				
9	**Universal Sample Extruder** Hand operated, with frame and adapter plates for 38 mm, 100 mm and 150mm diameter specimen complete with frame for extracting three 38 mm diameter specimens from 100 mm diameter sampling tube.	1				
10	**Soil Extruder** For 38mm sampling tubes,hand operated,with fitting arrangement to table	1				
11	**Constant Volume Mould** 38 mm dia. X 126 mm long complete with 38 mm dia. X 25 mm long plugs, Split collar and 126 mm long ejecting plunger, along with 38 mm sampling tubes 12 no.s.	6				
12	**Bench type Consolido meter** Front loading single gang complete with loading unit of 20 kg/cm2 capacity, Consolidation cell, dial gauges 5 x 0.002mm, Set of weights up to 20 kg/cm2, porous stones and additional 12 no.s screws for cell	1				

13	**Swell Pressure Test Apparatus** Consisting load frame 50KN capacity, Mould 100 mm diameter x 127.3 height; Proving rings 2.5 and 5.0 KN capacity with load transfer bar and steel ball, Soaking tank 25 cm diameter x 20 cm height, dial guage 0.01 x 25 mm	2				
14	**Unconfined Compression Testing apparatus** Hand operated with load frame, dial guage holder, 150 mm diameter upper and lower platens, Cone seating, 2 No.s Proving ring with dial guage 5 KN Capacity	1				
15	**Triaxial Test Set up** i. Complete with motorized load frame 50 KN capacity to accommodate universal triaxial cell, motor drive gear unit to give 30 different strain rates from 6mm/minute to 0.00048 mm/minute; operating on 220V 50 Hz, Single phase ii. Triaxial Cell for 38 mm dia. X 76mm height specimen suitable for lateral pressure of 1000 KPa, fitted with 4 volume change valves and dead end plug, complete with porous stones, membranes – 100 No.s for 38 mm diameter specimen. iii. Pore Pressure apparatus: 0 to 1000 Kpa mounted on steel panel with pressure gauge, mercury manometer, null indicator with copper coil etc. iv. Proving ring 10 KN capacity v. Dial gauge 0.01 x 25 mm vi. Lateral Pressure System,: Self compensating, Oil-water type, with pressure range 50 -1000 Kpa, complete with dead weights, pressure gauge etc.	1				
16	**Hydraulic Jack 50 Tons capacity** With pumpand pressure gauge, to be used for Plate Load Test, complete with 3m flexible pipe.	1				
17	**Wet Sieve shaker** Capable of accommodating seven sieves immersed in water operating on 220V, 50Hzs complete lid and receiver for sieves.	1				
18	**Split spoon sampler for SPT** As per IS2131 complete with driving shoe and cutting edge, without liner	3				
19	**Anchor Spikes for Plate Load Test** 7 m length with driving head at top	30				

20	**Glass beakers** 100 ml capacity, 250 ml capacity , 500 ml capacity	6 Nos each				
21	**Glass graduated cylinder with pour out** 100 ml capacity, 250 ml capacity , 500 ml capacity	6 Nos each				
22	**Plastic wash bottles with stoppers** 250 ml capacity , 500 ml capacity	6 Nos each				
23	**Diamond Core Cutter** Bosch Diamond Core Cutter: Wet Drilling in Concrete Drill Stroke: 500 mm, Drill Range: 202 mm, Power Input: 2500 W, Tool Holder: R 1/2 Inch, 1-1/4 Inch, Two threaded shanks on the machine enable easy, problem-free attachment of most conventional core cutter threads, Constant Electronic for constant speeds, Thermal protection prevents motor overload, Easy carbon brush changes, Aluminum handle in the tool's centre of gravity for optimum handling, Large switches for convenient operation, even with gloves on, Protective switch integrated in cable	1				
24	**Compression Proving Ring** 1000kNNABL calibrated Proving Ring with dial gauge and calibration chart and all necessary accessories, Tension and Compression type, bow type design, Various capacities from 0.5 kN upto 1000 kN, Accuracy strictly conforms to IS:4169- 1988	1				
25	**De-Aired Water Apparatus** AIM 097-1, unit with Perspex Water Container with 15 ltr of water capacity. Input and output lines are fixed with 4mm (approx.) and 6mm (approx.) ID of plastic tubing respectively. Suitable for operation on 220 V, 50 Hz, Single phase, AC Supply, Vacuum Requirements 750mm Hg or better, Degassing Purity 0.6 pp	1				
26	**Laboratory Automatic Planetary Ball Mill** Batch size / feed quantity* max. 1 x 220 ml, max. 2 x 20 ml with stacked grinding jars, No. of grinding stations 1, Speed ratio 1 : -2, Sun wheel	1				

	speed 100 - 650 min-1, Effective sun wheel diameter 141 mm, G-force 33.3 g, Type of grinding jars "comfort", optional aeration covers, safety closure devices, Material of grinding tools hardened steel, stainless steel, tungsten carbide, agate, sintered aluminium oxide, silicon nitride, zirconium oxide, Grinding jar sizes 12 ml / 25 ml / 50 ml / 80 ml / 125 ml / 250 ml / 500 ml Setting of grinding time digital, 00:00:01 to 99:59:59, Interval operation yes, with direction reversal, Interval time 00:00:01 to 99:59:59, Pause time 00:00:01 to 99:59:59, Storable SOPs 10, Measurement of input energy possible yes, Interface RS 232 / RS 485, Drive 3-phase asynchronous motor with frequency converter, Drive power 750 W, Electrical supply data different voltages, Power connection 1-phase, Protection code IP 30, Power consumption ~ 1250W (VA), W x H x D closed 640 x 480 (780) x 420 mm				
27	**Sony PJ675HANDYCAM® WITH BUILT-IN PROJECTOR** with all accessories (LED high Power video light, Remote Control Tripod, Camera Bag) Sensor type-1 / 5.8 type (3.1 mm) back-illuminated Exmor R® CMOS Sensor Effective Pixels Video)-approx. 2.29 Megapixels (16:9)2,Effective Pixels (Still Image)- approx. 2.29 Megapixels (16:9)/approx. 1.71 Megapixels (4:3),Image processor- BIONZ X™ image processor, Lens type- G Lens, Filter diameter-46mm, Lens Cover- Auto, Aperture -F1.8-F4.0,,Focal Distance-f=1.9-57.0 mm, Focal Length (35 mm equivalent) (Video)-f=26.8–804.0 mm (16:9)2,Focal Length (35mm equivalent) (Still Image)- f=26.8–804.0 mm (16:9), f=32.8–984.0 mm (4:3) ,Minimum focus distance- approx. 1 cm (Wide), approx. 80 cm (Tele), approx. 0.39 (Wide), approx. 31.5 (Tele),Optical zoom-30x,Clear Image Zoom-60x3,Digital zoom-350x4,Screen type-7.5 cm (3.0 type) Clear Photo LCD display (460 800 dots) Wide (16:9),Touch Panel-Yes, Image Stabilization Type-Balanced Optical Steady Shot™ w/Intelligent Active mode(5-axis),Media Type-Internal Flash Memory, XAVC S HD: Micro SDHC Memory Card (32 GB or over, Class 10 or Higher)/ Internal Media-Flash Memory 32 GB, Microphone Input-Stereo Minijack, Headphone Jack-Stereo Minijack, Memory Card Slot, Memory Stick Micro™ and Micro SD/SDHC/SDXC compatible, DC IN-Yes, Battery type-Info LITHIUM with Accu Power Meter System (V Series)	1			

10. Electronics Engineering

Item No.	Particulars	Approx. Qty q	Basic Unit Price a	VAT + GST b	Total Amount (a * q) + b	EMD amount (3 % of the total Cost)
1	Digital Workstation TechBook **Specifications:** Self contained& easy to operate Graphical LCD to show the menu of experiment & gate level diagram for selected experiments More than 46 Digital electronics experiments on single board. Solder less breadboard On Board DC Power Supply On board Pulse Generator.	5				
2	Taco meter Contact type **Specifications:** 0.5 to 20000 rpm. Resolusion 01rpm ,LCD display,	4				
3	Microwave Power Meter **Specifications:** 100mhz to 12 Ghz and above	1				
4	Powerscope 30Mhz. **Specifications:** Floating measurements with completely isolated inputs; X100 and X10 attenuation for floating measurements; Built-in Ramp and Pedestal Firing Circuit;1500 V max input for floating measurements; 30 MHz - 5 mV Dual Trace Oscilloscope; Algebraic sum & difference of both channels; Alternate Triggering; Line Trigger;	4				
5 A	**Power Electronics experimental kits** **Step up chopper Experimental Kit** **Specifications:** Input (variable) 12 to 48 V DC; Output (variable) greater than input DC, Resistive Load, isolated test points for gating pulses and output.	1				

B	**AC Voltage Controller experimental board.** **Specifications:** AC power control using TRIAC/ SCR, output ac voltage (rms) variable 100 V to 230 V AC, power 100W, isolated test points for gating pulses and output waveform.	1				
C	**Triggering Circuits for SCR, TRIAC, DIAC, MOSFET, IGBT** **Specifications:** R, RC, UJT, Pulse triggering for SCR, pulse triggering for MOSFET and IGBT, ammeter and voltmeter for measurements	1				
D	**Resonant DC to DC converter** **Specifications:**Series and Parallel Resonant DC to DC converter.	1				
E	**SCR based Series Inverter** **Specifications:**Input DC (24/ 48 V), output 24/ 48 V AC, current 1A, variable frequency 20 Hz to 200Hz.	1				
F	**Single phase inverter using power MOSFET Experimental Board** **Specifications:**Sinusoidal Output: 230V, 50Hz, 50 W, isolated test points for gating pulses and output, short circuit protection.	1				
6	**Universal IC Tester** **Specifications:** Tests a wide range of Digital IC's such as 74 Series,40/45 Series of CMOS IC's Technologies It tests Seven segment display of common cathode & common anode type It has Auto search facility of IC's Suitable for all Digital IC, Linear IC, Microcontrollers, RAM, ROM, PAL, PLA etc.	1				
7	**Wacom Tablet** **Specifications:** WACOM Intuos Draw Pen Only (Small) - White CTL-490DW 8.3 x 6.7 inch Graphics Tablet	4				
8	**Desktop computers** **Specifications:**Branded Desktop Computer: Minimum core I5 Processor, 8GB RAM, DDR3,1TB HDD,Tower model, with keyboard, mouse, DVD R/W, 4USB ports,17" LED Monitor with Pre loaded OS Windows10. Quote with and without monitor separately.	15				

Tender –August 2017

9	**NI myRIO, add on sensor board**						
a	**NI myRIO-1900** **Specifications:**University purchase only. Includes WIFI & MSP Connector. Affordable tool to teach and implement multiple design concepts with one device.10 analog inputs, 6 analog	5					
b	**NI myRIO Starter kit** **Specifications:**Common sensors &components for NI my RIO • Digital devices (LEDs, switches, 7-segmentdisplay),•Analog devices (potentiometer, thermistor, photo resistor, force sensing	3					
c	**NI myRIO Starter kit :** **Specifications:**Mechatronics kit common •H-bridge driver •Accelerometer •Triple-axis gyro •Infrared proximity sensor •Ambient light sensor •Ultrasonic range finder •Compass ••Hobby servo	3					
d	**NI myRIO Starter kit :** **Specifications:**Embedded kit common sensors, Devices & Display for Embedded Projects. The kit specifications includes: RFID reader kit Numeric keypad LED Matrix Digital	3					
10	**Software** Custom IC Design CAD tools which includes schematic capture, netlisting, simulation set-up, physical layout, DRC and LVS checks, floor planning and routing, analog and mixed signal verification tools, parasitic extraction etc	1					
11	**Software:** VLSI Design, Verification and Test package providing complete solution with HDL design entry, simulation, synthesis, RTL generation, verification and testing of ASICs and FPGAs using verilog/system verilog and Universal or similar verification methodology(UVM/OVM)	1					

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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), **Exclusive**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. By default warranty/bank guaranty for 3 years will be applicable for all items mentioned in tender.
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 before22nd September, 2017(2:00 p.m.).* 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 **Two Months.**
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	EMD	D.D. Details		
				D.D. No.	D.D. Date	Nationalized Bank's Name
		Rs. Ps.	Rs. Ps		DD/MM/YYYY	
1	Electrical Engineering					
2	CCF Department					
3	Hostel Department					
4	College Premises					
5	Applied Mechanics Department					
6	Information Technology					
7	Mechanical Department					
8	Computer Science & Engineering					
9	Civil Engineering					
10	Electronics Engineering					

Seal of Company   **Authorized Signature**
                                                                           Name:

Date:

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

Sr. No.	Name of Department	Contact No.	Email Address
1	Electrical Engineering	(0233)-2300933	hod.electrical@walchandsangli.ac.in
2	CCF Department	(0233)-2300410	ccfwce@walchandsangli.ac.in
3	Hostel Department	(0233)-2300243	hostelwce@rediffmail.com
4	College Premises	(0233)-2303433	registrar@walchandsangli.ac.in
5	Applied Mechanics Department	(0233)-2300714	hod.apm@walchandsangli.ac.in
6	Information Technology	(0233)-2301910	hod.it@walchandsangli.ac.in
7	Mechanical Department	(0233)-2300716	hod.mechanical@walchandsangli.ac.in
8	Computer Science & Engineering	(0233)-2301327	hod.cse@walchandsangli.ac.in
9	Civil Engineering	(0233)-2300230	hod.civil@walchandsangli.ac.in
10	Electronics Engineering	(0233)-2304470	hod.electronics@walchandsangli.ac.in