



**MAHATMA GANDHI UNIVERSITY
Anneparthi, Yellareddigudem
NALGONDA – 508254**

Ten. No.07/MGU/NLG/2017-18

Date:19.11.2017

e-Tender Notice

Online tenders are invited under Two-Bid system through e-Procurement Process from the reputed registered manufacturers or their authorized dealers/agencies or reputed suppliers for supply of Lab Equipment, Furniture/Equipment, LED Street Lights, Sports field courts, Computers & Air Conditioners etc.

Ten. No.08/MGU/NLG/2017-18

Date:19.11.2017

Online tenders are invited from reputed manufacturers/authorized distributors for entering into Annual Rate Contract for the financial year 2017-18 for the supply of Laboratory Chemicals, Glassware, Plastic wares and Kits.

For Tender notice and other details visit web site: tender.telangana.gov.in and also visit our web site: www.mguniversity.ac.in

Sd/-

REGISTRAR

**MAHATMA GANDHI UNIVERSITY
NALGONDA**

08682- 221904, website-mguniversity.ac.in

No. 07/MGU/NLG/2017-18

Date:19.11.2017

e-PROCUREMENT TENDER NOTICE
FOR PROCUREMENT OF LAB EQUIPMENT,
FURNITURE/ EQUIPMENT, COMPUTERS & AIR
CONDITIONERS etc.

Important Dates

Date of release of Tender through e-procurement	: 19.11.2017
Last date & time for submission of bid	: 04.12.2017 at 01:30 pm
Date & time for opening of technical bid	: 04.12.2017 at 2:00 am
Date & time for opening of financial bid	: 07.12.2017 at 01:00 pm

Online tenders are invited under Two-Bid system through e-Procurement Process from the reputed registered manufacturers or their authorized dealers/agencies or reputed suppliers having capacity to provide the **Lab Equipment for Electrical and Electronic Engineering(EEE), Electronics & Communication Engineering(ECE), Mechanical Engineering, Biochemistry, Biotechnology, Physics, Geology, Chemistry and Pharmaceutical Sciences & Furniture/ Equipment, Computers, Air Conditioners, LCDs, Scanners, Printers etc. for University Library and University Colleges & other departments and LED Street lights & Sports field Courts** at Mahatma Gandhi University, Nalgonda as per the technical specifications & required quantity (as mentioned in Annexure-I and Annexure-II) , and as per Terms & Conditions of the Contract through e-tendering procurement process.

AND

No. 08/MGU/NLG/2017-18

Date:19.11.2017

Online tenders are invited from reputed manufacturers/authorized distributors for entering into Annual Rate Contract for the financial year 2017-18 for the supply of Laboratory Chemicals Glassware, Plastic wares and Kits

Sd/-
REGISTRAR

e-PROCUREMENT TENDER NOTICE
FOR PROCUREMENT OF LAB EQUIPMENTS OF
ENGINEERING DEPARTMENTS

No. 07/Che& IPC/MGU/NLG/2017-18

Date:19.11.2017

ANNEXURE-I

TECHNICAL BID FORMAT

I. Dept., of Chemistry & Pharmaceutical Sciences:-

INORGANIC CHEMISTRY LAB			
Sl. No.	Name of the Item	Specification/ description	Qty
1.	SUCTION PUMP	For use with (Equipment): rotary evaporator, filtration flask and manifolds, vaccum oven Hose clamp, funnel, change of oil, oil mist eliminator to be included Pressure: 1mm	02

PHYSICAL CHEMISTRY LAB			
Sl. No.	Name of the Item	Specification/ description	Qty
1.	POLARIMETER	a) Polarimeter/saccharimeter body complete with two eye pieces b) With Sodium lamp kept inside the sodium lamp pipe. c) Sodium lamp pipe Bracket d) Clamp for sodium lamp e) Electrical connectors for sodium lamp f) Sample tubes with spare window glass and washers g) Thermometer in jacket h) Choke for Sodium lamp Scale With two scales visible: Angular Scale and is divided into intervals from 0° to 360°. International Sugar scale extending from +130° to -130° .	01

PHYSICAL CHEMISTRY LAB			
Sl. No.	Name of the Item	Specification/ description	Qty
3.	DIGITAL COLORIMETER	Wavelength Range : 400 to 700 nm with eight optical filters Filter's Peak wave length (nm): 420,440,490,520,540,570,600,720 Measuring modes : % T, ABS Sample volume (Min): 1ml in 4ml test tube Sample holder : Suitable for 10 mm flat bottom round test tube Source : LED Detector : Photo diode Display : Digital LED, 3-Digit Resolution : 1%T, 0.01ABS Power : 230V, ±10%, 50Hz,10VA(approx.)	04
4.	DIGITAL POTENTIOMETER	Input Configuration : Bipolar Range : 0 to ±1999 mV Resolution : 1 mV Control Stirrer Speed : 0 to full speed Hold read switch : To hold reading when pressed and in read mode Polarization Current : 10µA for Metal to Metal electrode Input Impedance : 10H Ohm Polarity : Automatic Over range : Last 3 digits blink Magnetic Stirrer : Inbuilt with variable speed Display : 3 1/2 digits LED Power Requirement : 230 V AC ±10%, 50HZ, 10VA approx.	06
5	PLATINUM ELECTRODES	(FOR SYSTRONICS DIGITAL POTENTIOMETER-318)	06
6	CALOMEL ELECTRODES	(FOR SYSTRONICS DIGITAL POTENTIOMETER-318)	06
7	SILVER ELECTRODES	(FOR SYSTRONICS DIGITAL POTENTIOMETER-318)	05
8	CONDUCTIVITY CELLS	(FOR SYSTRONIC CONDUCTIVITY METER-304)	06
9	COMBINED GLASS ELECTRODES	(FOR ELICO DIGITAL pH METER-LI 120)	06

ORGANIC CHEMISTRY LAB									
1.	SUCTION PUMPS	For use with (Equipment): rotary evaporator, filtration flask and manifolds, vacuum oven Hose clamp, funnel, change of oil, oil mist eliminator to be included Pressure: 1mm	02						
2.	HOT AIR OVEN	Double walled units inner chamber made of A/SS and outer made of mild steel with powder coating. Gap between the walls fitted with glass wool insulation to avoid heat losses. Heating elements are made of high grade chrome plated wire. Temperature is controlled by digital temperature controller. Temperature range 50°C to 250°C. <table border="1" data-bbox="651 701 1166 837"> <thead> <tr> <th></th> <th>Nos of trays</th> </tr> </thead> <tbody> <tr> <td>30x30x30cm</td> <td>2</td> </tr> <tr> <td>35x35x35cm</td> <td>2</td> </tr> </tbody> </table>		Nos of trays	30x30x30cm	2	35x35x35cm	2	02
	Nos of trays								
30x30x30cm	2								
35x35x35cm	2								
3.	HEATING MANTLE	Flask Capacity : 250ml , 500ml ,1000ml Maximum temperature : 450°C Voltage : 230V Chemically resistant outer casing EACH CAPACITY	02						
4.	MELTING POINT APPARATUS	This apparatus is useful in determination of melting point of any substance in small quantities up to 300°C. It consists of an aluminum block which accepts three capillary tubes & mercury thermometer. The block is heated by two elements clamped to the sides. The built in lamps provides uniform & shadow less illumination of sample tube which is viewed by magnifying glass	02						
5	UV CABINET	Ultra Violet Inspection Cabinet (UV Cabinet) useful for viewing paper and thin layer chromatograms.G.I. Epoxy powder coated cabinet. With enclosed long, short wave and white source	02						
6	Hot plate medium		03						
7	Steam Distillation		04						

ORGANIC CHEMISTRY LAB			
Sl. No.	Name of the Item	Specification/ description	Qty
8.	FUMING CUPBOARD	<p>These are to be designed to exhaust toxic and other harmful vapours for protecting laboratory personnel equipment.</p> <p>The main body of the Fume cupboard to be made of good quality Marine Plywood with water & chemical proof coated and inside of the cup -board is made from FRP lining, which is acid or alkali resistant, fitted with a sliding door made of Glass, moves vertically up and down with counter balanced weight operated by steel chain & sprocket.</p> <p>Fluorescent light to be provided inside the chamber for easy working.</p> <p>One water tap and gas cock are also inside the chamber.</p> <p>Working top of the fume cupboard is of Granite. A blower exhaust system fitted on the top of the working area, which generates negative pressure within the hood.</p>	04
9	ICE Making Machine	<p>Capacity : 20Kg/24H</p> <p>Ice Storage : 10Kg</p> <p>Voltage : 220V</p> <p>Cooling Type: Air cooling</p> <p>Refrigerant : R134a</p> <p>Water supply: Tap water</p>	02

PHARMACEUTICAL CHEMISTRY			
Sl. No.	Name of the Item	Specification/ description	Qty
1	BINOCULAR MICROSCOPE	Standard Complete set with Binocular Head, in built 6V-20W halogen light illuminator, with Anti Fungus Achromatic objectives 4X, 10X, 40X and 100X oil immersion, paired eyepieces wide field 10X in thermo Cole packing. FEATURES: Anti - Fungus Optics, interchangeability of Objectives, the abbe condenser & the light relay system fitted with high performance aspheric lenses for bright & crisp image, window in arm & the Ergonomic design, illumination system through SMPS circuit etc.	01
2	MICROWAVE OVEN	Domestic microwave oven Basic model	01
3	GLASS COLUMN FOR GC		01
4	OPTICAL MICROSCOPE		02
5	INVERTER AIR CONDITIONER	Capacity : 2 ton Function type : split	01

BIOTECHNOGY LAB			
Sl. No.	Name of the Item	Specification/ description	Qty
1.	BINOCULAR MICROSCOPE	Standard Complete set with Binocular Head, in built 6V-20W halogen light illuminator, with Anti Fungus Achromatic objectives 4X, 10X, 40X and 100X oil immersion, paired eyepieces wide field 10X in thermo Cole packing. FEATURES: Anti - Fungus Optics, interchangeability of Objectives, the abbe condenser & the light relay system fitted with high performance aspheric lenses for bright & crisp image, window in arm & the Ergonomic design, illumination system through SMPS circuit etc.	03
2.	Horizontal gel Electrophoresis	Specification: PI. No : 03-02, Cat No. : 6508GB, Principal Material : Acrylic Inner tank dimension : 215 x 141 x 55 mm No. of trays : 130 x 130 mm - 1 No. 130 x 65 mm - 2 No 65 x 60 mm - 4 No No. of combs : 13 Well Analytical Acrylic Comb 1.5 mm thick x 1 No. 8 Well Analytical Acrylic Comb 1.5 mm thick x 4 Nos. 3 Well Preparative Acrylic Comb 3 mm thick x 1 No. No. of gel casting tray : 1 universal. Connecting Cord : red and black (1 each). No. of Platinum electrodes : red and black (1 each).Lid	01

BIOTECHNOGY LAB			
Sl. No.	Name of the Item	Specification/ description	Qty
3.	Vertical Gel Electrophoresis	Pl. No. : 05-04, Cat No. : 106782GB Gel Size : 16 x 14 cms. x 2 gels Principal Material : Acrylic Upper Buffer Tank Dimension : 140 x 70 x 20 mm Lower Buffer Tank Dimension : 200 x 160 x 190 mm No. of Combs : 13 Well Teflon Comb 0.5 mm-2 Nos. 13 Well Teflon Comb 1 mm 2 Nos. Teflon Spacers : 0.5 mm Teflon Spacers 4 Nos. 1 mm Teflon Spacers 4 Nos. Connecting Cord : red and black (1 each). No. of Platinum Electrodes : red and black (1 each).Lid : Glass plate : Notched and Rectangular 2 sets. Gasket : Fixed Clamp and screws : 4 sets. Gel casting unit : Optional.	01
	Power supply:	Output DC Voltage : 0-300 Volts variable Output current : 0-300 mA Variable Output : One parallel output, 4 mm socket Display : Digital Body : MS with powder coated body Size : 360 x 230 x 130 mm Input Voltage : 230V, 50Hz, A.C. Supply	
5.	OPTICAL MICROSCOPE		01
6.	OCULAR MICROMETER		01
7.	STAGE MICROMETER		01
8.	DIGITAL BALANCE	Capacity 600g Accuracy 0.1g Platform size 150x150 mm	06
9.	TRIPLE PAN BALANCE		06
10.	Refrigerated Cold Centrifuge	12000rpm,105/2.0/5/15ML rovtter	01
11.	Tran illuminator	UV	01

ANNEXURE-I

TECHNICAL BID FORMAT

II. Dept., of Applied Biosciences:-

SL. NO.	Name of the Item	Specification/ description	Qty
1	WESTERN BLOTTING APPARATUS	<p>Specifications for Semi Dry Apparatus: Transfers in as little as 15-60 minutes, minimal buffer requirement Capacity to transfer multiple gels; gels may be placed side by side or stacked with dialysis membrane separating gel sandwiches Single-step locking system for simple, speed setup Buffer requirement per run must be preferably 200 ml or less Should be capable of transferring large gels of size 24 x 15 cm Warranty and installation: 3 years warranty including spares and consumables (reagents) should be provided for complete system Installation should be done free of charge at our lab Power pack: output DC voltage:0-350V. Output current:0-1000mA Including reagents to demonstrate the apparatus</p>	01
2	Plant tissue culture rack	<p>Plant tissue culture rack with four working shelves illuminated by lights Tissue racks are made of tubular mild steel pipes with epoxy powder coated Each rack of size 48"x21" (depth) is covered with thick glass or acrylic</p>	01
3	Double distillation Unit	<p>Glass double distillation automatically electrically heated apparatus with heater embedded in Spiral glass tube, heavy cast iron base, rod, clamps etc Automatic cutoff device with electrodes 10L/Hr capacity</p>	01
4	Refrigerator	<p>Double door refrigerator Top mount freezer with digital inverter 300L capacity</p>	01

SL. NO.	Name of the Item	Specification/ description	Qty
5.	UV-VIS SPECTROPHOTOMETER	<p>Optical Design: Double Beam with sample and reference cuvette positions; Czerny-Turner Monochromator Spectral Bandwidth: 1 nm Light Source: Xenon flash lamp, 3-year warranty Detector: Dual Silicon Photodiodes Scan Ordinate Modes: Absorbance, % Transmittance, Concentration, kinetic Kubelka-Munk, log (1/R), log (Abs), Abs*Factor, Intensity Resolution: >1.6(peak-to-valley ratio) Wavelength Range: 200 –800 nm at 1 nm increment Wavelength Accuracy: ± 0.8 nm (full range) ± 0.5 nm (546.11 nm mercury line) Wavelength Reproducibility: less than 0.1 nm (546.11 nm mercury line, SD of 10 measurements) Scanning Speed: <1 to 6000 nm/min; continuously variable Data Intervals: 10, 5, 2, 1, 0.5, 0.2, 0.1 nm Photometric Range: ≥ 3.0 Abs Photometric Accuracy: 0.5 A: ± 0.004A; 1A: ± 0.006A; 2A: ± 0.010A; (440 nm; traceable neutral density filters) Noise: 0A: less than 0.00015 A; 1A: less than 0.00050 A; 2A: less than 0.00080 A; (260 nm, RMS) Drift: < 0.0005 A/hr (500 nm, 1 hour warm-up) Stray light: KCl, 198 nm: less than 1% T NaI, 220 nm: less than 0.05% T NaNO₂, 340 nm, : less than 0.05% T Baseline flatness: ±0.0010 A (200-800 nm; smoothing) Keypad: Sealed Membrane Display: Touchscreen LCD panel; 800 x 480; 17.8 cm (7 in), Full operation display. Diagonal Operating System: Microsoft Windows 7 Dimensions: 62.2 x 48.6 x 27.9 cm (24 x 19 x 11 in) L x W x H Electrical Supply: SMPS 100-240V 50Hz Automatically; 150 W maximum Computer Control UV-Vis Power Cord 250v Standard Cuvettes one pair quartz and glass cuvettes Micro cuvette-50µl Laser Printer Suitable Stabilizer</p>	01

SL. NO.	Name of the Item	Specification/ description	Qty
6	APC Smart-UPS SRT 5000VA 230V for 15 computers for 3 Hours backup	Output power capacity 4.5 KWatts / 5.0 kVAMax Configurable Power (Watts) 4.5 KWatts / 5.0 kVA Nominal Output Voltage 230V Output Voltage Distortion Less than 2% Output Frequency (sync to mains) 50/60Hz +/- 3 Hz Other Output Voltages 220, 240 Load Crest Factor 3 : 1 Topology: Double Conversion Online Wave form type: Sine wave 65 AH/12V SMF Batteries- 16 (Amaron make)	01

ANNEXURE-I

TECHNICAL BID FORMAT

III. Dept., of Geology

Sl. No.	Lab	Name of the Equipment	Specifications	Qty
1.	Museum & Field equipment	Crystal models	6"X6"X 6" Wooden	25
		Fossils	5X5X5 CM(Three dimension)	25
		Ore minerals	3X3X3 CM	20
		Rock forming minerals	3X3X3 CM	20
		Haversag bags	30 kgs Capacity Feildbags	02
		Hammers	1 Feet Length	05
		Compass (Brunton)	With water bubble	05
		Rock specimens	6"X6"X 6" wooden Boxes	10
2	Optical Lab*	Mineral thin sections including Oriented thin sections	0.03 thickness Quartz, Calcite, Spheue (or muscovite)	03
		Ore mineral polished sections	1" (inch) full polished	05
		Rockthin sections	0.03 thickness	10
		Optical accessory plates	Quartz wedge Gypsum and Mica plate	03
3.	GIS & Remote sensing *	Aerial photographs	A3 Paper size	05
		Pocket Sterioscopihic lenses	Pocket model	05
		Imagery Light Tables	1.5 M Height 1.5M Width 1.5 Length	10
4	Hydrogeology Lab	Fluoride ion Meter	Ion meter multi point push button Calibration Digital display	01
		Electrical Conductivity meter	With ATC, 1 Point calibration	01
		TDS table top	Digital Conductivity meter with cells	01
5		GIS Soft ware	ESIR GIS	

TECHNICAL BID FORMAT

IV. Dept., of Physics:-

Sl. No.	Name of the item	Specifications	Qty
Modern Physics Lab			
1	Power Adptor of G.m Counting system	Model: (GC601A)(NuCleonix)	01
2	U- Tube glass limb	U- Tube glass limb	02
3	Lux meter	KM Lus-100K	01
4	Ultrasonic Interferrometry experiment	1,R.F.Oscillator,2.Rotational long tube Spectrometer3,Transparent Crystal Tanks - 3.4,Sodium Lamp 5,Sodium lamp Transformer 6,Wooden box for sodium lamp 7,Liquids i)Benzin,ii) Kirosen iii) Distle water.	01
5	Zeeman effect Experiment	Constant deviation spectrograph Calibration, Range: 4000Ao+or-10AoConstant deviation spectrograph prism($\mu=1.71$)Fabry-perot etalon Glass plates size:32MM:Clear aperture:25MM R/T =80/20+5% Micrometer eyepiece,Range 25MM (Lease connt:0.01mm) eyepiece Magnification: 10X.V.electromagnet 10 kilo Gauss at 10MM gap between its poles.VI,Digital Constant current power supply (30V,Amp)VII, Neon discharge tubes (2 No.S) VIII, Wooden stad with clamp for holdingdischarge tube IX,High voltage transformar to run the above discharges tubes (Voltage range:1 Kv-4.5 KvX.Digital Gauss meter with probe 0-20kg	01
Electronics Lab (I year)			
6	1MHZ Function generator	0.1 Hz to 1 MHz Function Generator with 4 digit Digital display for frequency readout Sine/Square/Triangle, Amplitude: 5 mV - 20 Vpp.	03
7	Linear & Digital IC Trainer	10 No's of Logic output Indicators Fixed DC Voltage sources of $\pm 5V$ & $\pm 12V$ TTL Clocks 1Hz, 10Hz, 100Hz and 1 KHz Positive and Negative Pulser Built inVariable DC Voltage sources of $\pm 15V$ Potentiometers 1M Ω , 470K Ω , 100K Ω , 10K Ω , 1K Ω One number of seven segment display with decoder driver	02
Electronics II year lab			
8	BNC cable	connecting wire	06
9	CRO	LINE Voltage selection 220V-110VRange(50/60HZ)-	02
10	Function Generator	0.1 Hz to 1 MHz Function Generator with 4 digit Digital display for frequency readout Sine/Square/Triangle, Amplitude: 5 mV - 20 Vpp.	02
11	Digital Multi meters	LCDdisplay,20ACurrent,DCV,ACV,DCA,ACA Resistance,Capacitance,Diode,Transister,Continuety Test,Temperature of Auto power of Off/ON	02

Sl. No.	Name of the item	Specifications	Qty
NCPE Lab			
13	Lux meter	KM Lus-100K	01
14	Digital Thermometers	0 to 100 degree centigrade	02
15	Digital Multi meters	LCDdisplay,20ACurrent,DCV,ACV,DCA,ACA Resistance,Capacitance,Diode,Transister,Continuety Test,Temperature of Auto power of Off/ON	02
16	Soldering kit	With Iron rod	01
17	Animometers	Wind Speed Measurement	01
18	Wind Energy Trainer	Contents & Specifications: Wind Turbine Setup : Contain 3 blades Maximum Open Circuit Voltage : 3 V DC Maximum Short Circuit Current : 250 mA DC Voltmeter : 0 -10 V Ammeter : 0 - 500 mA Potentiometer : 5 K AA Rechargeable : 1.2 V NiCd Battery Lamp : 3 V DC Fan : 3 V DC FM Band Radio : 3 V DC C	01
19	Solar PV Module Analyze	Instrument to determine characteristics of Solar PV Module Microcontroller based design RS232CONNECTIVITY,16x2lcd Mains and Battery operation	01
20	Fuel cell experimental Set up	Solar Panel : Voltage (at optimum power point) : 2.2 V DC Current (at maximum power point) : 450 mA Dimensions : 125 x 155 x 8 (mm) Note : Solar Panel data is based on standard conditions 2 (1000 W/m , 250C) Reversible Fuel Cell : Dimensions : 54 × 54 × 17 (mm) Total Weight : 69.7 grams Electrolyzer Function : Input Voltage : 1.8 ~ 2.6 V DC Input Current : = 0.7 A Hydrogen Production Rate : 7 ml / min at 1A Oxygen Production Rate : 3.5 ml / min at 1A Fuel Cell Function : Output Voltage : 0.9 V DC Output Current : 360 mA Power : 210 mW Volume of Inner Containers for : 16ml Hydrogen/Oxygen Gas Storage Solar PV Cells : Poly Crystalline Technology 0	01

Dept., of Physics (UCSI)

Sl. No.	Name of the item	Specifications	Qty
21	Solar stimulator	DC Voltmeter : 0-20V DC	01
		Ammeter : 0-2000mA	
		Temperature Controller : 35-80 C	
		Halogen Lamp : 2 Lamps of 50W	
		Light Regulator : 5 step light regulator	
		Control Box with accessories: User friendly interface with closed chamber	
		Heater coil : 25 W heater	
		Load Resistance : 10 ohm, 100ohm, 5000ohm	
		4-Quadrant Power Supply : For dark characteristics	
22	Solar cooker experiment set up	Environment friendly	01
		Alluminium reflective surface	
		Foldable system for easy transportation	
		Any type of cooking by boiling possible	
		Maintenance free operation	
Heat, Acoustics & Optics Lab			
23	Dimmer stat	Auto Transformer 2Amp	04
24	Digital Temperature indicator	for specific heat of graphite,0-300 degree C	03
		(Stefans constant unit,constant current source,DC differential amplifier)	
25	Ammeter(Galvano meter) for specific heat of graphite	Thermal conductivity unit,Constant current source,DC differential amplifier	01
		Thermal conductivity of copper expt.	
26	Stefan's constant experiment	Thermal conductivity unit,Constant current source,DC differential amplifier	01
27	Thermal conductivity of copper expt.	Thermal conductivity unit,Constant current source,DC differential amplifier	01
28	Digital watches	Water resistant,Digital watch (minutes,Seconds,1/100 Sec.)	02
29	Crown glass prisms	Glass prism	02
30	Laser sources	(Red color)	01
31	Plane Grating	(LPI 2500,LPI1500)	02
32	Digital Multi meters	LCDdisplay,20ACurrent,DCV,ACV,DCA,ACA Resistance,Capacitance,Diode,Transister,Continuety Test,Temperature of Auto power of Off/ON	02

ANNEXURE-I**TECHNICAL BID FORMAT**

V. Dept., of ECE:

Sl. No.	Name of the item	Specifications	Qty
1	General Equipment	Digital Storage Oscilloscope, 2 Channel, 25MHz DSO with coloured display 500 Msa/Sec sampling rate with USB pc interface Cable and Software	03
2		FAR 0.1 Hz to 2 MHz Microcontroller based Function generator with LCD Display for frequency & Amplitude Read out, INT/EXT frequency readout,Sine/Square/Triangle and pulse with variable duty cycle. Amplitude 2mV-20Vpp with 40dB,20dB,10dB attenuation , 50 /600 ohm impedance selection .	20
3		CRO test probes 10:1/1:1 switch selectance	30
4		3 ½ Digit Digital Multimeter LCD Display , 1999 counts with Backlight Display AC/DC Voltage, AC/DC Current , Resistance, Capacitance Frequency ,Temperature ,diode check and Continuity test complete with safety cover.	20
5		Servo Controlled Voltage Stabilizer Capacity: 5 KVA	03
6		3 ½ digit digital DC Ammeter 0 - 200mA	10
7		3 ½ digit digital DC Micro Ammeter 0 - 200µA	10
8		3 ½ digit digital DC Voltmeter 0 - 20V	10
9		Dual Trace Oscilloscope,2 Channel, 30MHz.Model NOOS 5030B. CRO Test Probe 10:1/1:1 Switch selectable	20

V. Dept., of ECE:

Sl. No.	Name of the item	Specifications	Qty
1	ELECTRONICS DEVICE LAB	TRANSISTOR, JUNCTION DIODE & ZENER DIODE CHARACTERISTICS	03
2		RECTIFIERS AND FILTERS KIT	03
3		CE CHARACTERISTICS KIT	03
4		CB CHARACTERISTICS KIT	03
5		FET CHARACTERISTICS KIT	03
6		CE AMPLIFIER KIT	04
7		CD (FET) AMPLIFIER KIT	03
8		COMMON COLLECTOR AMPLIFIER KIT	03
9		MEASUREMENT OF H-PARAMETER OF A TRANSISTOR	04
10		SCR CHARACTERISTIC KIT	03
11		UJT CHARACTERISTICS	03
ANALOG ELECTRONICS LAB			
1	ANALOG ELECTRONICS LAB	RC PHASE SHIFT OSCILLATOR KIT	03
2		CLASS B PUSH PULL AMPLIFIER KIT	03
3		CLASS A POWER AMPLIFIER KIT	04
4		TUNED RF AMPLIFIER	04
5		CURRENT & VOLTAGE SERIES FEED BACK AMPLIFIER	03
6		CURRENT & VOLTAGE SHUNT FEED BACK AMPLIFIER	03
7		HARTLEY OSCILLATOR KIT	03
8		COLPITTS OSCILLATOR KIT	03

Dept., of ECE

Sl. No.	Name of the item	Specifications	Qty
1	ELECTRONICS ENGINEERING LAB-I	RC COUPLED AMPLIFIER KIT	03
2		COMMON SOURCE FET AMPLIFIER	04
3		CASCADE AMPLIFIER KIT	04
1	ELECTRONICS ENGINEERING LAB-II	WEIN BRIDGE OSCILLATOR USING TRANSISTOR	04
2		CLIPPING AND CLAMPING CIRCUITS KIT	04
3		OPERATIONAL AMPLIFIER KIT	04
1	ELECTRONIC WORK SHOP & CIRCUITS LAB	VERIFICATION OF KIRCHOFFS LAW KIT	05
2		PCB FABRICATION OF SMALL CIRCUIT WITH ITS LAYOUT	10
3		SOLDERING AND DE-SOLDERING EXERCISES USING DISCRETE COMPONENTS AND IC'S FOR A SPECIFIC CIRCUIT REQUIREMENT	20

MP & MC Lab Kits for ECE department:

Sl. No.	Name of the item	Specifications	Qty
1	8086 Microprocessor Trainer Kit (LCD Version)	<p>8086 Microprocessor Trainer Kit (LCD Version) With 16 X 2 Lines LCD Display and External (PC) ASCII Keyboard.(With on board Assembler and Disassembler) With Power supply (5V, 1.5A; +/- 12V, 0.1A)</p> <p>Features:- CPU@ 5 MHz in MAX Mode with provision for 8087 coprocessor, Max Memory of 256 Kb of EPROM and 256 KB of RAM, system is Supplied with 128 KB of EPROM and 64 KB of RAM, Three 16 bit Timer / counter using 8253, 48 I/O lines using Two no's of 8255, one RS 232 Using 8251, one PIC using 8259. All address, data and control signals are terminated Model and Make: ALS SDA86MEL</p>	05
2	8031/51 Micro controller Trainer Kit (LCD Version)	<p>8031/51 Micro controller Trainer Kit (LCD Version) with 16 X 2 Lines LCD Display & External ASCII Key board With Built in HELP Menu with ON BOARD LINE ASSEMBLER AND DISASSEMBLER with Power Supply Rating (+5V/1.5A, +/-12V / 0.1A)</p> <p>Features CPU @ 11.0592 MHz with Maximum memory of 128 KB 64 KB EPROM and 64 KB Ram 48 TTL I/O lines using 2 no of 8255's Three 16 Bit Timer using 8253 On-chip port lines and signals INT0, INT1, T0, T1 terminated. All bus signals terminated in FRC connectors Note: System is Supplied with 32 KB of EPROM and 64KB of RAM Model and Make: ALS SDA 51MEL</p>	05
OPTIONAL ACCESSORIES FOR 8051 TRAINER KITS			
a	26 Core Cable for INTERFACING		05
b	50 Core Cable		05
c	RS 232 Cable		05
d	8051 communication Package		05

Interfacing Kits with Micro Processor and Microcontrollers:

Sl. No.	Name of the item	Specifications	Qty
1	Interfacing Kits	ALS-NIFC-01A Single Stepper motor Interface (Interface Card and one Motor)	02
		Power Supply for above Module (5V, 1A)	02
2		ALS-NIFC-06A Dual DAC Interface Module	02
3		ALS-NIFC-07A 8 Bit ADC Interface Module	02
4		ALS-NIFC-09 Key Board Display Interface Module	02
5		ALS-NIFC-11 Traffic Light Interface Module	02
6		ALS-NIFC-12 LCD Interface	02
7		ALS-NIFC-15 8255 Study Card interface	02
8		ALS-NIFC-17 Elevator Interface	02
9		ALS-NIFC-19 Real Time Clock Interface Module	02
10		ALS-NIFC-21 8251/8253 Study card interface	02
11		ALS-NIFC-24 8279 Study card interface	02
12		ALS-NIFC-26 8031 Study card interface	02
13		ALS-NIFC-27 ADC – DAC Interface Module	02
14	ALS-NIFC-34 8259 Study card interface	02	

Sl. No.	Name of the item	Specifications	Qty
	CPLD/FGPGA		
1	ALS-SDA-CPLD/FPGA-01 UNIVERSAL CPLD/FPGA Trainer Kit	ALS-SDA-CPLD/FPGA-01 UNIVERSAL CPLD/FPGA Trainer Kit <u>BASE BOARD</u> 16/32 Toggle switches for I/P selection with 16/32 LED's To indicate switch status. 16/32 LED's to connected to output ports of the FPGA. Two line X 16 Alpha-Numeric LCD display with backlight Four digit 7-segment display.4X4 key matrix.2. nos. of push button switches.On board 10MHz oscillators.10 MHz clock and one of four different clocks(5MHz, 1 MHz, 500 KHz and 100 KHz).User I/O available for pattern generator and logic Analyzer connection.Standard VGA, PS-2 and RS-232 serial interfaceConnectors are provided. On-board different supply voltage generator to match The multi-volt with LED indication. FPGA/CPLD of different makes (1.8V,2.5V, 3.3V,5V)With LED's to identify the card type. 26-pin FRC cable for connecting to ALS standard Interface boards like stepper motor, ADC, DAC, Traffic Light controller, Elevator, printer interface etc. Four sets of 20 X 2 female berg connectors to plug the child card.	05
2	DAUGHTER BOARD-1	FPGA XC3S50 MODULE (XILINX) XILINX XC3S50 – FPGA IC OPTIONAL 1 MB ROM for stand alone programming Push-button switch to re-initialize the FPGA.Power from the bottom board,Four sets of 20 X 2 berg connectors for plugging on to The main board. JTAG connector for boundary scan programming. Mode selection jumpers.	05
3	DAUGHTER BOARD-2	CPLD XC9572 MODULE (XILINX) XILINX XC9572 PC84 – CPLD IC Power from the bottom board,Four sets of 20 X 2 berg connectors for plugging on to The main board. JTAG connector for boundary scan programming. Mode selection jumpers.	05

Sl. No.	Name of the item	Specifications	Qty
4	DAUGHTER BOARD-4	XILINX FPGA XC3S400 with NVROM	05
5	XILINX USB DONGLE	XILINX USB DONGLE	05
6	DONGLE WITH CABLE	DONGLE WITH CABLE	05
7	POWER SUPPLY (5V, 1.5A, +/-12V, 100mA)	POWER SUPPLY (5V, 1.5A, +/-12V, 100mA)	05

DSP Kit

Sl. No.	Name of the item	Specifications	Qty
1.	DSP STARTER KIT (DSK) TMS320C6713 WITH CCS*	<p>DSP STATER KIT FOR THE TMS320C6713</p> <p>HARDWARE FEATURES: Texas Instrument's TMS320C6713 DSP operating at 225 MHz Embedded USBJTAG controller with plug and play drivers, USB cable included TL V320AIC codec 2M x 32 on board SDRAM 512K bytes of an board Flash ROM 3 Expansion Connectors (Memory Interface, Peripheral Interface & Host port Interface) On Board IEEE 1149.1 JTAG connection for optional emulator debug. Four 3.5mm audio jacks (micro phone, line-in, speaker, and line out) 4 user definable LEDS 4 position dip switch, user definable +5 Volt operation only, power supply included Size : 8.25" x 4.5" (210 x 115mm), 0.062 thick, 6 layers Compatible with Spectrum Digital DSK wire wrap prototype card.</p> <p>SOFTWARE FEATURES: TMS320C6713 DSK Specified Code Composer Studio from TEXAS instruments Test/Sample Code provided to reduce coding time.</p>	05

Software:

Sl. No.	Name of the item	Specifications/ Description	Qty
1.	Softwares	Xilinx Vivado Design Suite (25 user pack)	01

ANNEXURE-I**TECHNICAL BID FORMAT****VI. MECHANICAL ENGINEERING SUBJECT EQUIPMENT:**

Sl. No.	Name of the item	Specifications	Qty
1.	<u>Vertical drilling machines</u>	Machine Capacity (mm) - 25mm Column Diameter(mm) - 92mm Center of spindle to column (mm) - 250mm Distance spindle to Table (mm) - 645mm Distance spindle to Base (mm) - 1000mm Distance from spindle center to pillar surface - 250 mm Table Travel - 480mm Spindle Nose - MT-3 Spindle Travel (mm) - 250mm Range of Spindle speed (RPM) - 70-2000 No.fo spindle speed - 8 Table size (mm) - 350 Dia Base size (Machined area) (mm) - 255x310 mm V-Belt Section (mm) - B-51 Height with ground (mm) - 1780mm Main Electrical Motor - 1HD	01
2	<u>UNIVERSAL MILLING MACHINE</u>	Face of Body - 7" Surface of Table - 32 x 7" Size of tee slots - 1/2" No. of tee-slots - 3 Size of either side of center - 45" Cross - 6" Vertical Traverse - 13' Longitudual traverse - 15" Standard Arbor - 1" Taper of Spindal - M.T.3 No.of Spinle speed - 6 Range of Spindal speed - 60 to 545 Die of Spindle - 2" No.of Longitudinal feed - 2 Electricals - 1 h.p Coolant tank capacity - 2 Gallons Floor shape - 27" x 18" Height - 58"	

Sl. No.	Name of the item	Specifications	Qty
3	LIGHT DUTY LATHE	<p><u>CAPACITY</u></p> <p>1 Height of center - 165mm</p> <p>2 Swing over slide - 180mm</p> <p>3 Swing over bed - 320mm</p> <p>4 Swig in gap - 580mm</p> <p>5 Admit Between - 685mm</p> <p>6 Length of bed - 1370mm</p> <p>7 Width of bed - 240mm</p> <p><u>HEAD STOCK</u></p> <p>1 Hole Through the spindle - 40mm</p> <p>2 Taper Bore in spindle - MT-5</p> <p>3 Spindle Nose & Size - 6T.P.I</p> <p>4 Range of spindle speed - 40 to 950 RPM</p> <p>5 Spindle speed - 8</p> <p><u>TREADS PITCHIES</u></p> <p>1 Metric Treads - 1 to 6 mm</p> <p>2 Inches treads - 4 to 24 TP.M</p> <p><u>LEAD SCREW</u></p> <p>1 Diameter - 25.4mm</p> <p>2 Treads - 4TPM</p> <p><u>TAIL STOCKS</u></p> <p>1 Tapper born in sleeve - MT-3</p> <p>2 Sleeve travel - 125mm</p> <p>3 Sleeve dia - 38mm</p> <p><u>CARRIAGE</u></p> <p>1 Compound slide swivelling degree - 45-0-45</p> <p>2 Cross slide siz travel - 175mm</p> <p>3 Cross slide siz size - 150MM X 350 MM</p> <p>4 Top slide travel - 10mm</p>	02

- Note: 10% of Dimensional variation is permissible for all above equipment.

ANNEXURE-I**TECHNICAL BID FORMAT**

VII. Lab Equipments for EEE:

Sl. No.	Name of the item	Specifications	Qty
	POWER ELECTRONICS LAB		
1	CHOPPER DRIVE Note: For smooth conduction of this experiment all the required accessories should be supplied.	Speed Control of Separately Excited DC Shunt Motor using Four-Quadrant Chopper:- Four quadrant chopper drive – 24V: IGBTs based 4 quadrant chopper power circuit consists of 4 IGBTs ratings. <ul style="list-style-type: none"> ➤ IGBTs ratings Current: 20A - I_A, Voltage: 1200V – V_{AK}. ➤ Protection for high voltage(RCsnoubber) & short circuit(fuse). ➤ Each device is mounted on proper heat sink. ➤ An ammeter is provided to record the load current. ➤ A voltmeter is provided to record load voltage. ➤ All the terminals are brought out to front panel. ➤ Four isolated gate signals are provided for IGBTs. ➤ Frequency & duty cycle of the chopper can be set by the keyboard provided. ➤ Frequency & duty cycle of the chopper can be displayed on the LCD display. ➤ Test points are provided on the front panel. ➤ One On/Off switch with indicator provided to control circuit. ➤ Housed in a metal cabinet with terminals brought to front panel. Motor: Rating : 18 watts Voltage : 24V Current : 2A Speed : 1500 RPM Load : Mechanical arrangement. The Required Accessories are i) DC Regulated Power supply-30V/2A (Single output) ii) Digital Tachometer(Non Contact)	01

Sl. No.	Name of the item	Specifications	Qty
2	V/F CONTROL OF AC DRIVE. Note: For smooth conduction of this experiment all the required accessories should be supplied.	Three phase IGBT based PWM inverter with V/F control module 230V/3A:- This setup consists of 3Ph. IGBT based PWM inverter with V/F control method. Micro controller based driver circuit with LCD display .Provision for vary duty cycle and frequency. Opto coupler based isolation circuit to drive 6 IGBTs connected as 3-ph. PWM Inverter. Power circuit consists of 6 IGBTs mounted on heat sink and snubber circuit and fuse protection Input 230VAC through isolation transformer with MCB. Rectifier and capacitor filter. Rating of Power circuit-230V/3A. Accessories :- <ol style="list-style-type: none"> a) Three phase induction motor-0.5H.P.-230V b) Digital tachometer(non contact) c) Single phase isolation transformer: Primary:0-230V,sec:0-230V /3Ampswith tapings 	01
3	SINGLE PHASE INVERTER WITH R AND RL LOAD. Note: For smooth conduction of this experiment all the required accessories should be supplied.	Single phase IGBT based PWM inverter -30V/2Amps:- This experimental setup requires i).Single phase PWM inverter – IGBT BASED. ii).Regulated DC power supply – 30V/2A. iii).Rheostat and Inductor i) Single phase PWM inverter - IGBT BASED-30V/2A :- Features Required: <ol style="list-style-type: none"> a) Microcontroller based control circuit to accurately vary the pulse width. b) The following PWM technique needs to be studied :- <ol style="list-style-type: none"> i. Single pulse modulation. ii. Multiple pulse modulation. iii. Sine triangle modulation. iv. Trapezoidal modulation. v. Staircase modulation. c) LCD display (2line x 16 characters) to indicate the parameters and type of modulation. d) Key board consists of 5 keys – SET, INC, DEC, FREQ/D.CY and RUN/STOP to vary and set the parameters. e) The frequency can be varied from 20Hz to 100Hz. The duty cycle can be varied from 0 to 100%. Carrier frequency – 9 pulses per each half cycle. f) Opto coupler based isolation/driver circuit to drive 4 IGBT's connected as 1 – phase full bridge inverter. g) The power circuit consists of 4 IGBT's with builtin reverse diodes of rating 19A/600V. All the devices are mounted on proper heat sinks and protected by snubber circuit and fuses. ii).Regulated DC power supply 30V/2Amps. iii).Rheostat 100 Ohms/2Amps. Loading Inductor-150mH/2Amps	01

Sl. No.	Name of the item	Specifications	Qty
4	Study of 1 KVA UPS and SMPS for variable voltage with constant load, constant voltage with variable load.	<p>Study of 1 KVA UPS and SMPS for variable voltage with constant load, constant voltage with variable load.</p> <p>A)SMPS kit :MOSFET-12V SMPS kit based on Power MOSFET based fly back converter. Consists of Power transformer, a Power MOSFET, diode rectifier, A capacitor filter and Built in load resistors. Accessories :- DC regulated power supply 30V/2A.(single)</p> <p>B) Study of 1 KVA UPS</p>	01
5	Consumables	Triac, Diac, SCR, MOSFET, Transistors, Resistors, Inductors.	20 each different type
		Digital Hand held Multimeters Bread Board Trainer kits.	05
6	30 MHz , Dual Trace Oscilloscope.	30 MHz , Dual Trace Oscilloscope.	02
7	0 to 30V, 0 to 2A Dual DC	0 to 30V, 0 to 2A Dual DC Regulated Power Supply with 2 Digital Meters calibrated to the standards.	02
8	Servo controlled voltage stabilizer 5KVA.	Servo controlled voltage stabilizer 5KVA.	02
CONTROL SYSTEMS LAB			
1	FREQUENCY RESPONSE OF COMPENSATING NETWORK. Note: For smooth conduction of this experiment all the required accessories should be supplied.	Lag-Lead network study unit:- This unit consists of the following: Sine wave generator – 50Hz – 1.0KHz. Microcontroller based LCD display to display the frequency/phase angle meter with lead/lag indication. A digital voltmeter is provided to measure the Vpeak of Network input & Network output to calculate gain. Different values of resistors & capacitors supplied along with this unit to connect in Lead – Lag Network.	01

Sl. No.	Name of the item	Specifications	Qty
CONTROL SYSTEMS LAB			
2	<p>STEP RESPONSE AND FREQUENCY RESPONSE OF GIVEN PLANT.</p> <p>Note: For smooth conduction of this experiment all the required accessories should be supplied.</p>	<p>A) Step Response of given plant:- Time response of Second order system study unit:- This Second Order system is using Op – amps and R, L and C. Built in signal source – square and DC. Damping factor – 0.3, 0.7, 1 and 2. Time constants – 3 msec and 5 msec for second order system using Op amp. Damping factor vary from 0 to 2 for second order system using RLC. Mains operated.</p> <p>B) Frequency response of a given plant:- Frequency response of Second Order Systems study unit:- This unit consists of the following items: Sine wave generator – 50Hz – 1.0KHz. Microcontroller based LCD display to display the frequency/phase angle meter with lead/lag indication. A digital voltmeter is provided to measure the Vpeak of Network input & Network output to calculate gain. RLC components with variable R to vary the Damping factor from 0 to 2 to study frequency response of second order system using RLC. Mains operated.</p>	01
3	<p>A.C and D.C Position control Systems</p> <p>Note: For smooth conduction of this experiment all the required accessories should be supplied.</p>	<p>This set up consists of</p> <p>A). AC Servo Motor set up with Power Module One numbers of AC Servo Motor with mechanical load set up and position sensor (SERVO POT) for motor position measurement and feed back 2 Phase AC servo Motor with Gear ,24VDC - 24VAC , 1500/50 RPM on gear side ,2kg /cm Power Module consists of TRIAC based DC-AC Chopper power circuit for Bi directional rotation with necessary over load protection. In built 24v ac source for power circuit input.</p> <ul style="list-style-type: none"> • PWM Isolator Pulse driver circuit is provided • Digital controller for chopper PWM generation • LCD display for set position and Motor actual position indication (10-350 degree) <p>B). DC Servo Motor set up with Power Module DC Servo Motor with mechanical load set up and position sensor (SERVO POT) for motor position measurement and feed back</p> <ul style="list-style-type: none"> • Type : PMDC Motor with Gear , Voltage : 24VDC , 1500/50 RPM on gear side , Torque : 2kg /cm • Power Module consists of MOSFET based DC-DC Chopper H-Bridge power circuit for Bi directional rotation with necessary over load protection. In built 24v dc source for power circuit input. • PWM Isolator IC and MOSFET driver ic is provided 	01

Sl. No.	Name of the item	Specifications	Qty
CIRCUITS AND MEASUREMENTS LAB			
1.	<p>Measurement of % ratio error and phase angle of given PT.</p> <p>Note: For smooth conduction of this experiment all the required accessories should be supplied.</p>	<p>Consists of a Panel Closed type with front Hylam sheet. Aft ht x B ft wd x C mm depth. Standard PTs of Different Ratio. PTs under test of various Ratio 1 Phase Auto Transformer-----6 Amps. Phase shifting Transformer --- 1no. Digital Voltmeter-----500 Volts AC----02 no. Analog Panel mounted wattmeter (0-250V, 0.5 Amps) ----02 nos. MCB Protection Neon Indications-----LED. Terminals Patch cords.</p> <p>Measurement of % ratio error and phase angle of given CT by comparison. Standard CTs of Different Ratio. CTs under test of various Ratio 1 Phase Auto Transformer-----8 Amps. Phase shifting Transformer --- 1no. Digital Voltmeter-----500 Volts AC----01 no. Digital Ammeter-----20 Amps AC----02 no. Analog Panel mounted wattmeter (0-250V, 5 Amps) ----02 nos. MCB Protection Neon Indications-----LED. Terminals BTI – 30. Patch cords.</p>	01
2	<p>Calibration and testing of single phase energy Meter by phantom loading.</p> <p>Note: For smooth conduction of this experiment all the required accessories should be supplied.</p>	<p>Consists of a Panel Closed type with front Hylam sheet. Panel size 2ft ht x 4 ft wd x 200mm depth. 1 Phase Auto Transformer-----10 Amps. Digital Voltmeter-----300 Volts AC----01 no. Digital Ammeter-----20 Amps AC----01 no. Analog Panel mounted wattmeter (0-500V, 10 Amps) Energy meter single phase R- Load MCB Protection Neon Indications-----LED. Terminals Patch cords.</p>	01

Dept., of EEE:

Sl. No.	Name of the item	Specifications	Qty
3	Measurement of 3 phase power with single watt meter and 2 NO'S of C.T Note: For smooth conduction of this experiment all the required accessories should be supplied.	Measurement of 3 phase power with single watt meter and 2 NO'S of C.T Consists of a Panel Closed type with front Hylam sheet. 2ft ht x 4 ft wd x 200mm depth. 3 Phase Auto Transformer-----8 Amps. Digital Voltmeter-----500 Volts AC----01 no. Digital Ammeter-----20 Amps AC----01 no. Wattmeter-----600V, 10A, UPF---01No. Load bank MCB Protection Neon Indications-----LED. Terminals BTI – 30. Patch cords.	01
4	Measurements of Iron losses by Lloyd Fischer square method.	All the accessories to conduct this experiment	01
5	Calibration of Ammeter and voltmeter by DC Crompton's potentiometer	All the accessories to conduct this experiment	01
ELECTRICAL MACHINES LAB			
1	Three phase Auto transformer.	Three phase Auto transformer. 0-470V/8Amps.	02
2	Single phase auto transformer.	Single phase auto transformer. 0-270V/8Amps.	02
3	Digital Tachometer	Digital Tachometer hand held type.	02
4	Single Phase Resistive load bank. Qty 2No.	Single Phase Resistive load bank. Qty 2No. Voltage: 230Volts. Current: 5 Amps. Max power: 1.2KW No. of steps: 3 steps.	
5	Digital Hand Held Multi meter.	Digital Hand Held Multi meter.	02
6	Electrical Tool kit.	Electrical Tool kit.	
7	Soldering Tool Box.	Soldering Tool Box.	
8	Connecting Wires (Wound)	Connecting Wires (Wound)	

Sl. No.	Name of the item	Specifications	Qty
DSP LAB			
1	<p>Stepper Motor Control using DSP trainer kit</p> <p>Note: For smooth conduction of this experiment all the required accessories should be supplied.</p>	<p>Stepper Motor Control using DSP trainer kit</p> <p>This set up needs</p> <ol style="list-style-type: none"> MOSFET Power Circuit DSP based PWM Controller Stepper motor set up. <p>Detailed specifications:</p> <p>MOSFET Power Circuit- 4 numbers of IRF250 MOSFET based power circuit / 24Vdc @ 2A, / With proper heat sink / power Diode with filter capacitor for AC-DC Conversion / Built In driver circuit / OPTO IC is provided for all PWM isolation / MOSFET outputs are terminated in banana connector – Specifications- Input- 24VAC, Output – @ 2A ratings suitable for 4 phase stepper motor</p> <p>DSP based PWM Controller</p> <p>This controller needs TMS320FC2812/TMS320F28335 based controller from “TI” for Motor control applications and this controller can be used to generate PWM Signals for SCR, IGBT based power electronics application like BLDC Switched Reluctance Motor (SRM) control application. PWM output of this controller can be interfaced with IGBT Power Module through External cable connection</p> <p>12 Numbers of PWM Outputs up to 20KHZ of switching frequency</p> <ol style="list-style-type: none"> 32 bit fixed point high speed processor 150 MHZ Clock frequency Built in 128 K X16 Flash & 256 X16K SRAM , 4 X 16K BOOT ROM USB - PGM Down loader 2 Bit / 6 Channel ADC input QEP Sensor /Hall sensor/Speed sensor(Proximity)Interface PWM increment & decrement key Reset switch & LED's for Sensor status 20 X 4 LCD Connector PWM outputs are terminated by 34 pin FRC Connector <p>Stepper Motor- 6kg stepper motor /4 phase unipolar / 6v or 12v / sensor for closed operations / with spring balance load set up</p>	01

Sl. No.	Name of the item	Specifications	Qty
DSP LAB			
2	<p>Brushless DC Motor controlling using DSP trainer kit</p> <p>Note: For smooth conduction of this experiment all the required accessories should be supplied.</p>	<p>This set up needs</p> <p>a. DSP based PWM controller b. IGBT Power Module c. BLDC Motor set up (1hp) a. DSP based Microcontroller based PWM Controller</p> <p>This PWM controller needs Dspic30f4011 controller chip specially designed for Power Electronics & Motor control applications and this controller can be used to generate PWM Signals for SCR, IGBT based power electronics application like DC-AC Inverter ,DC-DC Chopper & SCR converter based AC/DC/BLDC Switched Reluctance Motor (SRM) control application. PWM output of this controller can be directly interfaced with Power Module through External cable connection.</p> <p>Features</p> <p>i).High-Performance Microchip dsPIC30F4011 Microcontroller with 48kb Internal Flash Program Memory ii) 6 Numbers of PWM Outputs up to 15KHZ of switching frequency iii) RS232 Connection with MAX232 , Internal EEPROM , Five 16-bit Timers ,Programming and Test LED's , 2MB PROM & 24 Mhz clock speed , USB - PGM Down loader , 6 Numbers of ADC input iv). QEP Sensor /Hall sensor/Speed sensor(Proximity)Interface , PWM increment & decrement key v) Reset switch & LED's for Sensor status , 20 X 4 LCD screen vi).PWM outputs are terminated by 34 pin FRC Connector</p> <p>b. IGBT power module (Voltage source Inverter)</p> <p>i) IGBT based Smart Power Module (SPM) based Voltage source inverter ii) Six numbers of IGBT in a single chip, Ratings @ 600V @ 20A,/Model FSBB20CH60B iii) Device is fixed With proper heat sink for cooling iv). Single phase Diode rectifier (35A , 600V) with filter capacitor is provided for AC-DC Conversion v).Built In IGBT driver circuit & OPTO-IC provision is for all PWM isolation vi)Hall effect current sensor is provided for output AC/DC current measurement and Hall effect current sensor is provided for input DC current measurement vii). Over current trip circuit is provided with trip status indicator, External RESET switch is provided for Trip clear.&MCB provided for input power ON/OFF viii). IGBT outputs and AC inputs are terminated in banana connector</p> <p>c. BLDC Motor with spring balance load set up Type BLDC Motor Power 1 hp Voltage 300VDC- Speed 1800 RPM Feedback sensor 3 Number of Hall sensor Loading spring balance loading Spring balance loading</p> <ul style="list-style-type: none"> • One number Brake DRUM with spring balance set up is coupled with the above motor <p>Two numbers of dial indication (0-10kg) for Load measurement in Kg</p>	01

Dept., of EEE:

Sl. No.	Name of the item	Specifications	Qty
	<p>Three phase Induction motor speed control using DSP trainer kit</p> <p>Note: For smooth conduction of this experiment all the required accessories should be supplied.</p>	<p>This set up consists of</p> <ol style="list-style-type: none"> 1. DSP based PWM Controller 2. IGBT Based Voltage source inverter 3. 3Ø AC Motor set up <p>1. DSP based PWM Controller</p> <p>Features</p> <ul style="list-style-type: none"> • 12 Numbers of PWM Outputs up to 20KHZ of switching frequency • 32 bit fixed point high speed processor • 150 MHZ Clock frequency • Built in 128 K X16 Flash & 256 X16K SRAM , 4 X 16K BOOT ROM • USB - PGM Down loader • 12 Bit / 6 Channel ADC input • QEP Sensor /Hall sensor/Speed sensor(Proximity)Interface • PWM increment & decrement key • Reset switch & LED's for Sensor status • 20 X 4 LCD Connector • PWM outputs are terminated by 34 pin FRC Connector <p>2. IGBT Based Voltage source Inverter</p> <ul style="list-style-type: none"> • IGBT based Smart Power Module (SPM) based Voltage source inverter • Six numbers of IGBT in a single chip, Ratings @ 600V @ 20A, Model FSBB20CH60B • Device fixed With proper heat sink for cooling • Single phase Diode rectifier (35A , 600V) with filter capacitor is provided for AC-DC Conversion • Built In IGBT driver circuit & OPTO-IC is provided for all PWM isolation • 3 numbers of Hall effect current sensor is provided for output AC/DC current measurement • One numbers of Hall effect current sensor is provided for input DC current measurement • Over current trip circuit is provided with trip status indicator • External RESET switch is provided for Trip clear. • MCB provided for input power ON/OFF • IGBT outputs and AC inputs are terminated in banana connector <p>3.AC Motor set up Specifications- Input- 230VAC, Output – 0-300V DC @ 5A or 1 Phase 200VAC@ 5A suitable for 1 hp AC motor</p>	<p>01</p>
	<p>Note</p>	<p>All DSP trainer kits should provide with code composer studio software latest version.</p> <p>ALL kits should be programmed so that Experiments like Waveform generation ,convolution LED interfacing etc can be performed.</p>	

MP&MC Lab for EEE:

Sl. No.	Name of the item	Specifications	Qty
1.	8086 Microprocessor Trainer kit	<p>8086 Microprocessor Trainer kit</p> <p>With Assembly level programming Using Kit based Assembler/Disassembler In standalone Mode Without PC</p> <p>Universal Microprocessor/Controller Trainer</p> <p>➤ Specifications:-</p> <ul style="list-style-type: none">➤ Universal Mother Board with 128K onboard RAM➤ On board RTC 58167(socket) optional➤ On board Speaker interface➤ RS232c port➤ 48 I/O lines using 2 Nos Of 8255➤ 8251 USART➤ 8253 T/C➤ Mother board should be compatible to 8/16 bit Microprocessor and controller.➤ LCD display➤ SMPS Power supply with 5V, +/-12V for above.➤ PC Keyboard for above. <p>Optional CPU card Of 8051 With Assembly level programming Using Kit based Assembler/Disassembler In standalone</p>	01

Dept.of EEE:

Sl. No.	Name of the item	Specifications	Qty
2.	Peripheral study cards	<p>Peripheral study cards for</p> <ul style="list-style-type: none"> ➤ 8253 Periware Specification: <p>It Should have buffers,switches,debounce ckts for software, Single stepping,One 8255 with tags for all I/O ports,Vcc & GND tags.LEDs to display status</p> <ul style="list-style-type: none"> ➤ Converter card for connecting Periware card. Two 50 pin FRC cables to attach for periware ➤ 8279 Periware Specification: <p>It Should have buffers,switches, debounce ckts for software, Single stepping of every access to the 8279 card and LEDs to display status. Switch S1 is used to enable single stepping or to keep CPU in free running mode and</p> <ul style="list-style-type: none"> ➤ Converter card for connecting Periware card. Two 50 pin FRC cables to attach for periware ➤ 8251 Periware Specification: <p>It consists of buffers, switches, debounce circuits for software Single Stepping, one 8251 with tags for all the required input output pins, Vcc & Ground tags, LEDs to display status</p> <ul style="list-style-type: none"> ➤ Converter card for connecting Periware card. Two 50 pin FRC cables to attach for periware ➤ 8255 I/O study Card Specifications: <p>It consists of buffers with tags for all I/O ports, VCC & GND tags, LEDs to display status.</p>	01

Sl. No.	Name of the item	Specifications	Qty
3.		<p><i>Different Sample programs provided along with each peripheral model for studying its different modes.</i></p> <ul style="list-style-type: none"> ➤ 8-bit ADC/DAC Card <p>Specification: 8 bit 8 channel ADC & 8 bit DAC (0-5V)</p> <ul style="list-style-type: none"> ➤ Traffic light controller and logical I/O Interface card <p>Specification: Traffic Light of 2 intersections with 24 LEDs and tags</p> <ul style="list-style-type: none"> ➤ 7 segment Display <p>Specification: Scanning Techniques illustrating 8X8 LED Matrix,4X4 Keypad 7 segment 8 digit red LED display study card</p> <ul style="list-style-type: none"> ➤ Stepper motor /Dc motor combined interface card. <p>Specification: Stepper motor and 12V DC motor Interface card with motors mounted to illustrate speed, direction control.</p>	01
4.		<p>Cables and Connectors</p> <p>RS 232 Cable , 26 Pin FRC and USB to serial Dongle</p>	

MATLAB SOFTWARE

SI.No.	Product Code	Description	Qty
1	ML	MATLAB	30
2	SL	Simulink	30
3	AA	Antenna Toolbox	30
4	CM	Communications System Toolbox	30
5	CT	Control System Toolbox	30
6	DS	DSP System Toolbox	30
7	GD	Global Optimization Toolbox	30
8	IP	Image Processing Toolbox	30
9	NN	Neural Network Toolbox	30
10	OP	Optimization Toolbox	30
11	SG	Signal Processing Toolbox	30
12	SS	Simscape	30
13	PS	Simscape Power Systems	30
14	SD	Simulink Control Design	30
15		Simscape Electronics	30

ANNEXURE-I**TECHNICAL BID FORMAT****VIII. ENGINEERING PHYSICS LAB**

Sl. NO	NAME OF THE EXPERIMENT	SPECIFICATIONS	QTY
1	p-n Junction Diode	Variable DC regulated power supply 0-15 V On board Silicon and Germanium diodes Dual range DC Volt meter of 1.5V/15V Dual range DC Ammeter of 250 μ A/25mA Different values of three resistors on board	03
2	Photo Cell / Planks constant	Complete set with power supply, variable light source and 5 different filters.	02
3	Solar Cell	Variable light source built in digital voltmeter and ammeters with 20V and 2000mA ranges respectively. Different values of resistors and one potentiometer and different output variable light source.	02
4	Thermister	Variable DC regulated power supply 0-5V One Galvanometer on board One thermistor and 1K Ω potentiometer with calibrated dial on board.	02
5	Energy gap of semiconductor	Supply calibrated to multi turn potentiometer, Analog meter, Oven and Thermo meter.	02
6	Dielectric constant of a dielectric material	With inbuilt capacitance meter , Brass Discs on stand ,with specimen samples ,plywood , glass etc.	01
7	Hall effect	Hall Probe (Ge Crystal, Mounted on aPCB), Electromagnet 10,000 Gauss, Constant Current Power Supply with 2 digital meters. Digital mV 0 to 200 mV sensitivity ± 0.1 mV auto polarity. Digital mA -0-20mA, sensitivity ± 0.01 mA Digital Gauss meter with Hall probe, 20KG Two wooden stand for probes.	01

ANNEXURE-I

TECHNICAL BID FORMAT Furniture for University Library

	Item	Particulars	Qty
1	Books shelves, Wooden	Made in 18mm (Thick commercial (ISO) plywood both sides decolum pasted) /pre laminated particle board having all sides teakwood edge banded with open shelves. Singlefaced 900Lx450Dx1825H mm	01
2	Flexi Rack Two Way	Sides made in 18 mm (Thick commercial (ISO) plywood both sides decolum pasted)/ pre laminated particle board having all sides teakwood edge banded with five compartments, five adjustable shelves & fifty book separators made in powder coated MS CRCA sheet. Size: 4500 L x 650 D x 1900 H	01
3	Flexi Rack Two Way	Sides made in 18mm (Thick commercial (ISO) plywood both sides decolum pasted) /pre laminated particle board having all sides teakwood edge banded with two compartments, five adjustable shelves & twenty book separators made in powder coated MS CRCA sheet. Size: 1800 L x 650 D x 1900 H	01
4	Reading TableTwo Way Four Seated	Made in 18mm(Thick commercial (ISO) plywood both sides decolum pasted) /pre laminated particle board having all sides teakwood edge banded .Middle Partition: 18mm thick x 1200mm Height Size: 1600 L x 1200 D x 750	01
5	Reading Module	Made in 18mm (Thick commercial (ISO)plywood both sides decolum pasted) /pre laminated particle board having all sides teakwood edge banded Partition: 18mm thick x 1200mm Height	
		Two seats: size:1600Lx600Dx750/1200H mm	01
		Three seats: size:2400Lx600Dx750/1200H mm	01
6	Journals Rack (12)	Made in 18mm (Thick commercial (ISO) plywood both sides decolum pasted) /pre laminated particle board having all sides teakwood edge banded with 12 flap doors. 1200Lx420Dx1140H mm	01
7	journals Rack (16)	Made in 18mm(Thick commercial (ISO)plywood both sides decolum pasted) / pre laminated particle board having all sides teakwood edge banded with 16 flap doors &two drawers. 1200Lx420Dx1870H mm	01
8	Set of Reception Table and side table	Top made in 25mm & U/s made in 18 mm(Thick commercial (ISO)plywood both sides decolum pasted) / prelaminated particle board having all sides teakwood edge banded with keyboard tray, one drawer & one door. 06mm Aluminium T strips on modesty. Size 2350Lx600DX750/1150H mm	01
		Side Table : Top made in 25mm &U/s made in 18mm (Thick commercial (ISO)plywood both sides decolum pasted) /pre laminated particle board having all sides teakwood edge banded with two drawers & two doors. Size : 900Lx450Dx750H mm	

9	Office tables and Side Table	Top made in 25mm & U/s made in 18mm 18mm (Thick commercial (ISO)plywood both sides decolum pasted) /pre laminated particle board having all sides teakwood edge banded with three drawers & 08mm plain glass on top. Size:1800Lx900Dx750H mm Side Table : Top made in 25mm & U/s made in 18mm18mm (Thick commercial (ISO)plywood both sides decolum pasted) / pre laminated particle board having all sides teakwood edge banded with two drawers and two doors. And 08 mm plain glass un top Size:900Lx450Dx750H	1 1
10	Office Chair	Medium Back revolving chair with cushion seat, Nylon net on back, P.V.C arms & gas lift.	1
11	Visitor Chair	chair with cushion seat and back, soft handles & frame made in MS Pipe.	1
12	Visitors Sofa	Three Seater Chrome plated Bench with handles. Size: 1800 L x 680 D x 800 H Seat width: 520mm	1
13	Round Table	Made in 18mm 18mm (Thick commercial (ISO)plywood both sides decolum pasted)/pre laminated particle board Oing all sides edge banded. Size: 1200x750H	1
14	Shopping Trolley	Load Capacity 50 kg, Material Stainless Steel, Mild Steel Feature ,Foldable, Height Adjustable,	1
15	Rotary filing unit	Rotary Filing Rack - load capacity50kg, height1930	1
16	Book cart	Made in 18mm 18mm (Thick commercial (ISO)plywood both sides decolum pasted) pre laminated particle board having all sides edge banded with open shelves and wheels. Size:900Lx450Dx900H	1
17	Display and direction boards		Each item rate
18	Circulation counter(Books Issue and return) Design has to submit.	Front table made in 18mm post laminated commercial ply wood having all sides teakwood edge banded with 2 key board trays, 12 mm glass curved vertically fitted and Black granite on top. Size:4070Lx800Dx750/1250H - 01No. Side Table 18mm post laminated commercial ply wood having all side edge banded with three doors, one key board tray and black granite on top. Size:2400Lx600Dx750H 02Nos Back table made in 18mm post laminated commercial ply wood having all side edge banded with open shelves, and black granite on top. Size:2635Lx600Dx750H 02Nos Flap door size:600Lx600Dx 01N Barrier Table: Made in 18mm post laminated commercial ply wood having all sides edge banded with 12mm glass fitted vertically Size:1500Lx450Dx750/1200H	1 1
19	S-Type Chairs with arms	S-Type Chairs with arms-made of 14 gauge MS pipe frame, teakwood seat, back and arm frames with French polish finish, cane knitted seat and back.	1
20	Fiber Chairs	Fiber chairs seat and back cushion Design/sample has to submit.	1
21	Magazine Display Rack	Made in 18mm post laminated commercial plywood having all sides edge banded with open racks. Size: 900 L x 600 D x 1800 H 	1

Digital Library/ automation Servers and client systems:

Sl.No	Particulars	Configuration	Qty
1	SERVER For Digital Library	1 Server (Brand Model: Lenovo/Dell - Configuration: 8Core Processor E5-2600 v4 Series, 32GB RAM, 4TB HDD, DVD Drive), 21" Monitor.	1
2	SERVER For Library Automation	1 Server (Brand Model: Lenovo/Dell/hp - Configuration: i5 6 th Gen, 16GB RAM, 2TB HDD, DVD Drive), 21" Monitor, Keyboard, Mouse.	1
3	Barcode Reader	Wireless Bar Code Readers with display and memory (Stock verification purpose)	1
4	Client system	i3 6th gen 4GB ram 1TB HDD DVD writer 20" Monitor Keyboard and Mouse	10
5	UPS	10KV UPS with at least 4Hrs Backup 20KV UPS with at least 4Hrs Backup	1+1

Note: Kindly send the quotations for **Dell/ Lenovo/HP** brands.

Computers for University

Sl. No.	Name of the item	Specifications/ Description	Qty
1	Computers	Display Size 20 inches Display Resolution 1600x900 Display Type HD, WLED Processor Brand Intel Processor Intel Core i3 (3rd Generation) Clock Speed 2.90 GHz Operating System Windows 8.1(OEM Pack) Processor Model 3240 T Cache Memory 3 MB MAIN MEMORY System Memory (RAM) 8 GB DDR 3 MEMORY STORAGE Hard Drive 500 GB Storage Interface SATA Hard Drive Reading speed 7200 RPM GRAPHICS Integrated Graphic Processor 1 GB NVidia GeForce 610M OPTICAL DRIVE Drive Type Tray-load DVD+/- RW INPUT DEVICES Mouse Yes Keyboard Yes CONNECTIVITY Wireless 1703 802.11b/g/n USB USB 2.0	90
		Display Size 20 inches Display Resolution 1600x900 Display Type HD, WLED Processor Brand Intel Processor Intel Core i3 (3rd Generation) Clock Speed 2.90 GHz Operating System Windows 8 Processor Model 3240 T Cache Memory 3 MB MAIN MEMORY System Memory (RAM) 4 GB DDR 3 MEMORY STORAGE Hard Drive 500 GB Storage Interface SATA Hard Drive Reading speed 7200 RPM GRAPHICS Integrated Graphic Processor 1 GB NVidia GeForce 610M OPTICAL DRIVE Drive Type Tray-load DVD+/- RW INPUT DEVICES Mouse Yes Keyboard Yes CONNECTIVITY Wireless 1703 802.11b/g/n USB USB 2.0	22

Sl. No.	Name of the item	Specifications/ Description	Qty
1	Computers	DISPLAY Display Size 20 inches Display Resolution 1600x900 Display Type HD, WLED Processor Brand Intel Processor Intel Core i3 (3rd Generation) Clock Speed 2.90 GHz Operating System Windows 8 Processor Model 3240 T Cache Memory 3 MB MAIN MEMORY System Memory (RAM) 4 GB DDR 3 MEMORY STORAGE Hard Drive 500 GB Storage Interface SATA Hard Drive Reading speed 7200 RPM GRAPHICS In-built Graphic card OPTICAL DRIVE Drive Type Tray-load DVD+/- RW INPUT DEVICES Mouse Yes Keyboard Yes CONNECTIVITY Wireless 1703 802.11b/g/n USB USB 2.0	05
		1. Operating System : Windows 10 Licensed. 2. Processor : Intel core i3 Processor. 3. RAM : 4 GB 4. HDD : 500 GB 5. DVD Drive : Read / Write DVD Drive 6. USB Support : Front min 2 no.s and Rear min 6 no.s 7. LAN : Network Facility 8. Monitor : LED 21"	08

Note: Kindly send the quotations for **Dell/ Lenovo/HP** brands.

Furniture / Equipment for University

Sl. No.	Name of the item	Specifications/ Description	Qty
2	Printers	Printing Type : Black & White Printing Technology : Laser Print Resolution : 600 X 600 dpi (dots per inch) Paper size : A4, A5, A6, B5, C5, DL, Postcard Print Cartridge : Black Warranty : 1 Year	07
3	LCD Projectors	Display type : LCD Light Output : 3200 Lumens Screen coverage : 30 to 300 inches Contrast ratio : 2500:1 Resolution : XGA (1024 x 768) Projector lens : 1.3x Manual Zoom / Manual Focus Features : Digital Keystone Correction, VGA & HDMI Input, Speakers Warranty : 2 Year(s)	10
4	Scanners	Scanner type : Flatbed color Output resolution : up to 1200 x 1200 dpi with CIS sensor Interface : One USB 2.0 Hi-speed port Light source : White LED, IR LED Bed Size : A4, Document Size: A4 Warranty : 1 Year	01
5	Monitors	LED Monitor Display Size: 19 inches (18.5 inch) Input : 1 VGA, Warranty : 3 Year(s)	05
6	Air Conditioners	Tonnage Class :1.5 TR./2.0TR/2.2TR Unit : In Door Unit & Net weight : Out Door Unit & Net weight : Star rating : Fan Speed : 3 Steps Air flow (IDU) Cooling/Heating : (cubic feet per minute) Warranty : Year(s)	06

Furniture / Equipment for University

Sl. No.	Name of the item	Specifications/ Description	Qty
7	UPS	10KV Online UPS with 100 AH/12V sms Batteries 16 No.s 5KV Online UPS with 65 AH/12V sms Batteries 16 No.s 3 KV UPS sms Batteries 8 No.s Each one	01
8	Office Table	3x6 size with two sides draws (Godrej make)	01
9	Almirah	78"x36"x19" (Godrej standard)	03
10	Servers	1. Operating System : Microsoft ® Windows Server® 2016 Licensed. 2. Type of Product : Rack Server 3. Processor : Intel® Xeon® E5 4. RAM : 32 GB DDR4 RAM 5. HDD : 4 x 1 TB 6. DVD Drive : Read / Write DVD Drive 7. Monitor : LED 21" 8. Key Board : 1 no. 9. Mouse : 1 no. 10. RACK : Standard Rack (for Fixing Rack Server).	02
11	MS Windows 2016 Server OS	MS Windows 2016 Server OS	02
12	Server RACK with other Accessories	Server RACK with other Accessories	01

LED street lights

Sl. No.	Name of the item	Specifications/ Description	Qty
13	LED street lights	Supply of 200 Watts LED Flood light luminarie die-cast aluminium (Code No – BVP 410 210 CWHE NBF 53X T Lamp type – 200W LED ‘PHILIPS’ MAKE) analysis enclosed	06

Preparation of SPORTS FIELD COURTS :-

Sl. No.	Name of the Ground	Name of the Material	Estimated amount
14	One Hand Ball Court (size: 42x22m)	40mm & 60mm Granite (300 Sq.ft)	Rs.200000/-
		20mm Chips	
		Rock Dust	
		Tested Red Soil	
		Hand Ball Poles including nets	
15	One Hockey Field (Size: 61x100m)	40mm & 60mm Granite (300 Sq.ft)	Rs.300000/-
		20mm Chips	
		Rock Dust	
		Tested Red Soil	
		Hand Ball Poles including nets	
16	One Basket Ball Court (Size: 24x37m)	5 Inches Cement Flooring with 5mm Iron rods with Including Basketball poles, Ring & Acrylic with Painted line marking	Rs.890000/-
17	One Cricket Ground included Football and 400m Athletic Track (Size: 185x99m)	1 Feet Granite Stone	Rs. 1400000/-
		40mm & 60mm Granite	
		Rock Dust	
		Red Bricks	
		Tested Red Soil	
		Pisco Grass	
		Football Poles and Net	

ANNEXURE-II

FINANCIAL BID FORMAT

#	Name of Lab Equipment with Description/Specification	Qty. Reqd.	Unit	Unit Rate (inclusive of all duty / taxes except GST)	Amount of GST	Total Unit Rate	Warranty period
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

**MAHATMA GANDHI UNIVERSITY
NALGONDA**

08682- 221904, website-mguniversity.ac.in

INFORMATION SUPPORTING FOR CAPACITY / CREDIBILITY

1. The bidder should have Digital Signature so as to enable him to submit his/her bids online through e-tendering.
2. The bidder should be the manufacturer or authorized dealer of any manufacturer. He is required to furnish Performance Certificate for last three years showing turnover of the category of the items for which bid is submitted.
3. The bidder has to produce the proof of supplying the similar items for preceding 3 years to the Technical/Teaching/Research Institution of well-known high standard reputed Institutions and other Laboratories etc.
4. The bidder must furnish details of their 10-15 customers reputed institutions with full address, telephone number etc.
5. The bidder must furnish details of some relevant equipment supplies made, such as name of the equipment, order number, cost and date of supply etc. during the last financial year.
6. If the bidder is manufacturer, he/she must furnish details of its organization, stating the number of personnel employed, manufacturing facilities, post sales service facilities and quality control systems etc.
7. If the bidder is an authorized dealer, he/she must furnish details of its organization, stating the number of personnel employed, tie-ups for post sales service facilities.
8. All the quoted items/equipments should be of standard make.
9. Participating bidder shall pay fee @ i.e 0.03% of ECV +14 % of Service Tax towards transaction fee on e-procurement at the time of bid submission in favour of TSTS, Hyderabad by way of Electronic payment Gateway. The transaction fee is not refundable.

REGISTRAR
Mahatma Gandhi University,
Nalgonda

**MAHATMA GANDHI UNIVERSITY
NALGONDA**

08682- 221904, website-mguniversity.ac.in

GUIDELINES/PROCEDURE TO BE FOLLOWED IN E- PROCUREMENT

1. Tender Processing Fee:- Payment of Rs.2000/-(Rupees two thousand only) in the form of Demand Draft on any Nationalized Bank drawn in favour of the Registrar, Mahatma Gandhi University, Nalgonda payable at Nalgonda and handed over it on or before closing date of technical bid in the office of the Registrar, Mahatma Gandhi University, Nalgonda,
2. Tender fee once paid is neither refundable, transferable nor adjustable for other tenders.
3. Submission of Bids:- The bidders desirous to participate in 'e'-procurement shall submit their price bids in the standard formats prescribed in the Tender documents , displayed at tender.telangana.gov.in The bidder should upload the scanned copies of all the relevant certificates, documents etc. at tender.telangana.gov.in in support of their price bids. The bidder shall sign on all the statements, documents, certificates, uploaded by him, owning responsibility for their correctness/authenticity.
4. Payment of Bid Security (Earnest Money Deposit): - The EMD has to be paid on 2.5% of the total bid cost shown in the tender document. The EMD shall be paid in online mode to Registrar, Fund Account No. 62032609526, Branch: SBI Anneparthy, Nalgonda District, IFSC Code : SBIN0021270.
5. Price Bid Opening:- The Price Bids will be opened online by the concerned officer /officers on the specified date & time and the result will be displayed on the tender.Telangana.gov.in which can be seen by all the bidders who participated in the tenders. If any of the date earmarked for opening of technical or financial bids happens to be holiday, the bids will be opened on the very next working day.
6. Processing Of Tenders:- The concerned officer/officers will evaluate and process the tenders as done in the conventional tenders and the documents will be communicated to the bidder online.

7. Rules for Financial participation of E-Procurement:- The e-procurement system would be applicable for purchase of goods, outsourcing of services and execution of work as prescribed in General Financial Rules.

8. Clarification/Assistance: -For any query/clarification in respect of Technical aspect of e- procurement contact email: registrar_mgu@yahoo.com
For Technical support: Mr.D.Srinivas Reddy, 9985991248
Site related support : Upadhi Technical services : 040-39999703/04

Sd/-
REGISTRAR

**MAHATMA GANDHI UNIVERSITY
NALGONDA**

08682- 221904, website-mguniversity.ac.in

TERMS AND CONDITIONS

1. Procedure for submission of bids: -
 - (i) The bidders desire to participate in "e- procurement shall submit their Technical and Price bids in the standard formats prescribed in the Tender documents, displayed at tender.telangana.gov.in. The bidder should upload the scanned copies of all relevant certificates, documents etc. in the tender.telangana.gov.in support of their price bids. The bidder shall sign on all the statements, documents, certificates, uploaded by him, owning responsibility for their correctness/authenticity.
 - (ii) Tender shall be uploaded as per guidelines indicated for e-procurement solution.
 - (iii) The prices must be quoted in Indian Rupee only and it must be inclusive of all type of taxes etc.

2. Technical Specifications / Terms & Conditions: -
 - (i) The detail technical specifications, quantity required for items covered under each category are mentioned in Annexure-I and Annexure-II.
 - (ii) The specification issued with this form of tender should not be altered by the Suppliers.
 - (iii) The specification of the item quoted by the firm should be in confirming with to the University specifications. Confirmation, in this respect should be specifically mentioned in the tender. Where the tenderer feels that the specification of the item not fully given or differ, from the specification of the item mentioned by the University, the exact specification of such item should be attached with the tender indicating the item quoted. The bidder should not mention best quality/good quality/superior quality etc. but give make and brand of the item quoted.
 - (iv) The Firm is required to attach the University specifications with catalogues & Design leaflets/literature for each item. Details features, for compliance of specification should be provided on specification sheet & appropriate reference i.e. page no. & para of literature, leaflet where the relevant information CAN BE checked, should be indicated.

3. Cost of Bidding:-
- (i) The bidder shall bear all the costs associated with the preparation and submission of its bids through e-tendering system. The Purchaser will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
 - (ii) The bidder is expected to examine all instructions, forms terms & conditions in the Bid documents, failure to furnish all information required by the bid documents or submission of bid not substantially responsive to the documents in every respect will be at the bidder risk and may result in the rejection of their Bid.
4. Bid Validity: -
- Both technical and financial bids shall remain valid for a period of six months from the date of order for supply & installation of equipment.
5. Quotation: -
- (i) The quoted price should be mentioned inclusive of all taxes such as customs duty etc , but GST should be mentioned separately as given in the Price Bid format. The aggregate price quoted along with all taxes should not exceed the M.R.P. of the items.
 - (ii) Revisions of rates are not allowed after the opening of tenders and the same rates are valid for a period of six months only.
 - (iii) In case tenderer not able quote for one or more of the items invited for in the tender the word "NOT QUOTED" (in the rate column) should be indicated.
6. Earnest Money Deposit (EMD): -
- 2.5% of the value of the each product will be taken as EMD paid in online mode to Registrar Fund Account No. 62032609526 in any Nationalized Bank.
7. Delivery Period and its extension: -
- (i) The minimum delivery period should be clearly mentioned against each item, incase, the items are not readily available; ex-stock offer will be preferred.
 - (ii) The supplies shall have to be made within the mentioned in the mentioned days from the date of purchase order issued. However, in exceptional circumstance and, on written request, from the supplier/ tenderer, extension of date for supply of the material may be considered. Extension in supply period is at the sole discretion of the competent authority. If the supplier fails to deliver any or all of the goods or to perform the services within delivery period including extension, if any, the purchaser shall without prejudice to its other remedies under the contract, as a liquidated damages @ 1% per week on undelivered items. Once the maximum deduction of 9% is reached, the purchaser will terminate the contract and forfeit the performance security for undelivered goods.

- (iii) In exceptional circumstances, the purchaser may solicit the bidder's consent for an extension of the period of validity of 60 days. The request and the response thereto shall be made in writing. The validity of Performance Security provided shall also be suitably extended.
- (iv) If the Contractor / Supplier fails to deliver/install the stores or any installment thereof within the period fixed for such delivery or at any time repudiates the contract before the expiry of such period, Registrar, Mahatma Gandhi University, Nalgonda -508254 may without prejudice to the right of the purchaser may recover damages for breach of the contract.

8. Insurance of Consignment: -

Consignment will be insured at the cost of Tenderer/Supplier till satisfactory supply and installation of the equipment and not at the cost of Institute.

9. Submission of On-line Bid: -

The Tenderers are required to upload the scanned copies of the following information/documents along with technical/ financial bids at tender.telangana.gov.in

- a. Copy of GST Registration Number.
- b. Copy of Challan submitting of last three (2014-15, 2015-16 and 2016-17) VAT / Annual Sales Tax Return, duly signed and stamped by Trade & Taxes Department of the concerned State.
- c. Copy of PAN card.
- d. Copy of annual financial turnover (Trading A/c and Balance Sheet) for the last three years (2014-15, 2015-16 and 2016-17), duly audited by C.A.)
- e. Copy of EMD submitted.
- f. Annexure –I-A duly filled in and signed by the Tenderer.
- g. Product Catalogue of respective items quoted, having items model number, its specifications, complete address of manufacturer etc.
- h. Specification Comparison Statement (tabular comparison) of required specification and offered specifications.
- i. Copy of authorization certificate issued by manufacturer of respective item, in case bidder is an authorized dealer.
- j. Proof of at least 03 supply orders of similar equipment, like name of the equipment, order number, cost and date of supply etc. during the last 03 years to the Technical/Teaching/Research Institution of reputed high standard e.g. I.I.T/N.I.T/C.S.I.R and other Laboratories etc.

10. Opening of Technical Bid:-

- (i) The technical & financial bids of only those bidders will be opened who fulfill the eligibility criteria required and whose documents are found in order, on the date and time earmarked for opening of technical & financial bids.
- (ii) If any of the date earmarked for opening of technical & financial bids happens to be holiday, the bids will be opened on the very next working day.
- (iii) The bidder's representative, who are present shall have to sign on the minutes of bid opening document for evidencing their attendance.
- (iv) The rates of items found, as per specification of Tender Document of the respective firm will be announced.

11. Bid Rejection:-

- (i) The bid will be rejected out rightly in case of non-uploading the scanned copies of any of the following documents at tender.telangana.gov.in
 - a. Copy of SGST, CGST and IGST Registration Number.
 - b. Copy of Challan submitting of last three (2014-15, 2015-16 and 2016-17) VAT / Annual Sales Tax Return, duly signed and stamped by Trade & Taxes Department of the concerned State.
 - c. Copy of PAN card.
 - d. Copy of annual financial turnover (Trading A/c and Balance Sheet) for the last three years (2014-15, 2015-16 and 2016-17), duly audited by C.A.)
 - e. Copy of EMD submitted.
 - f. Annexure 1-A duly filled in and signed by the Tenderer.
 - g. Product Catalogue of respective items quoted, having items model number, its specifications, complete address of manufacturer etc..
 - h. Copy of authorization certificate issued by manufacturer of respective item, in case bidder is an authorized dealer.
 - i. Proof of at least 03 supply orders of similar equipment, like name of the equipment, order number, cost and date of supply etc. during the last 03 years to the Technical/Teaching/Research Institution of well-known high standard Institutions e.g. I.I.T/N.I.T/C.S.I.R and other Laboratories etc.
- (ii) The bids will also be rejected out rightly under any one or more of the following cases: -
 - a. Non-submission of original processing fee to the undersigned, before the date of closing of bids.
 - b. Not meeting the technical specifications.

- c. If the bidder is not found eligible as per requisite criteria.
- d. If the column found blank and quoted rates are not as per criteria.
- e. If the Technical and/or Financial Bid is not signed and stamped by the bidder.
- f. If the prices are quoted other than in Indian Rupee.
- g. If the bidder found indulging in malpractice of pooling of bid.
- h. If the bidder provides Conditional/Incomplete quotation.
- i. Non-production of items for demonstration, if desired.
- j. Non-production of original documents for verification.
- k. Non-submission of information in support of Capacity/Credibility of the organization.
- l. Submission of any wrong information.
- m. Non-submission of Printed Product Catalogue of respective items quoted, having items model number, its specifications, complete address of manufacturer etc

(iii) The Competent Authority reserves the right to reject any or all the tenders without assigning any reason, at any stage, and his decision will be final.

13. Evaluation and Comparison of Bids: -

- (i) The purchaser's price evaluation of the bid will be as below: -
Unit rate of item inclusive of Excise Duty / CST / any other tax (including GST), if any.
- (ii) The bidder should quote all the rate on the basis of the delivery at the purchaser site. No extra transportation charges, delivery charges, installation charges will be paid or considered.
- (iii) The purchaser will evaluate and compare the total bid price for each item, which have been determined to be substantially responsive as per the qualified criteria of bidder.
- (iv) The Competent Authority of the College does not bind himself/ herself to accept the lowest or any tender.
- (v) If the bidder has quoted longer delivery period than the stipulated as above in item No. '7', an amount of 1% of the quoted price shall be added per week for the period beyond the stipulated period in the quoted price for the purpose of financial evaluation of tender.

14. Notification of Contract and Placement of Supply Order:-

- (i) Prior to the expiration of the period of bids validity, the purchaser will notify the successful bidders in writing that their bid has been accepted.
- (ii) The notification of award will constitute the formation of the contract.

- (iii) Upon the successful bidder's furnishing of Performance Security, the purchaser will promptly notify each unsuccessful bidder and will discharge its EMD.
15. Inspection: -
- (i) The inspection of the goods shall be carried out to check whether the goods are in conformity with the technical specifications attached to the contract.
 - (ii) The final inspection of the goods ordered shall be carried out by the technical expert committee duly constituted by the University.
 - (iii) If the firm fails to supply items as per specifications mentioned in the contract within stipulated time, its performance security will be forfeited.
16. Change in quantity of equipment: -
- The purchaser reserve the right at the time of award of contract to increase or decrease the quantity of goods specified in the schedule of requirement without any change in price or other terms and conditions.
17. Payment: -
- The payment will be made within 60 days after the successful demonstration/ installation of the equipment. Rejected items/goods should be removed within 30 days after which no responsibility will be lies with the University .
18. Performance of Product: -
- (i) Service manuals, wherever available/required, should be provided along-with the Equipment.
 - (ii) A WARRANTY certificate should invariably be supplied along with the item at the time of delivery and the validity of the Warranty Certificate should be valid from the date of installation of the item for a minimum period of one year. Non-Compliance of the same will result in non-acceptance of the item from the firm with whom the order was placed beside rejection of the tender.
 - (iii) The supplier warrants the goods supplied under the contract are new, unused and most recent. The supplier further warrants that the goods supplied under the contract shall have no defect arising from design or materials or workmanship or from any act or omission of the supplier that may develop under normal use of the supplied goods in the conditions at the consignee place.

19. Cancellation of Contract: -

- (i) Demonstration of equipment has to be arranged by the suppliers, if desired by the University. Non-production of items for demonstration will result in rejection of the tender.
- (ii) If the Supplier, in the opinion of the University fails or neglects to comply with any of the terms & conditions forming, part of the order issued, the head of University shall without prejudice to any other right or remedies under the contract, has the right to cancel the contract /order by giving 15 days' notice in writing to the Suppliers/firms without being liable to pay compensation for such cancellation.
- (iii)
 - a. If the supplier fails to execute the supply order by the date; specified in the order or within any extension thereof granted by the purchaser;
 - b. If the supplier fails to perform any other obligation under the contract;
 - c. If the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practice in executing the contract;the purchaser may, without pre-judice to any other remedy for breach of contract, by written notice, terminate the contract in whole or in part.

20. Forfeiture of Bid Security: -

- (i) The bid security will be forfeited, if the bidder withdraws its bid during the period of bid validity.
- (ii) In the case of successful bidder, if the bidder fails to sign the contract or fails to submit the performance security, the bid security will be forfeited.
- (ii) "Force Majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such an event may include but are not restricted to, acts of the purchaser, either in its sovereign or contractual capacity, wars or revolution, fire, floods, epidemics, quarantine restrictions and freight embargoes.
- (iii) If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligation under the contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

23. Resolution of Dispute:-

- (i) The purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation on any disagreement or dispute arising between them under or in connection with the contract.
- (ii) Any dispute is subject to the jurisdiction of the Nalgonda, Telangana State Courts only.

Note: Bidder should note that, the documents submitted online shall be considered only for bidding. The University shall have the right to demand the copy/ photocopy of any document which is submitted online through e-procurement website and the photocopy of any document which is not legible or readable. If any contractor fails to provide the requisite information/document within 03 (three) days, the University reserves the right to disqualify the bid.

REGISTRAR

**MAHATMA GANDHI UNIVERSITY
NALGONDA**

08682- 221904, website-mguniversity.ac.in

(TO BE SUBMITTED ALONG WITH TECHNICAL BID)

TENDER I.D. NUMBER : _____

1. File Reference Number : _____
2. Name & Address of the Firm : _____

3. Telephone Numbers : Office : _____
Residence _____
Mobile No. _____
4. Name(s) of the Partner : (1) _____
(2) _____
5. Whether Manufacturer or Authorized Dealer in r/o quoted item/s : _____
6. GST Registration No. : _____
7. PAN Card No. : _____
8. Name of items for which quoted : _____

9. Details of EMD Submitted : Amount _____ Dated _____
(DD/Pay Order/FDR) No. _____ Bank _____
10. Whether agree for demonstration at : College Premises / Manufacturer Site /
Site where item already installed

I / we undertake to abide the terms and conditions provided with the tender documents.

Dated: _____

(Signature of Tenderer)

Name in BLOCK Letters: _____

Stamp of the firm

(TO BE SUBMITTED ALONG WITH TECHNICAL BID)

TENDER I.D. NUMBER : _____

TENDER FORM

The Registrar
Mahatma Gandhi University
Nalgonda.

Sir,

We, the undersigned (herein after called as Contractor/Vendors/Suppliers) hereby offer to execute supply of items as per specification against which we have quoted over rates and for which this tender may be accepted at the rates stated there in and subject to the terms & conditions set forth for such items as may be ordered by the Registrar, Mahatma Gandhi University, Nalgonda, or officer acting on his/her behalf.

Date this _____ Day of _____

Signature of Contractor _____

Address _____
