

## Annexure 3

### Technical Specifications for Computers and Peripherals:

Sl. No.	Item	Technical Specifications
	Desktop Computer Systems	Annexure 2''c(i)
	All-in-one Desktop Computer – 15 numbers	Annexure 4''a
	Laser Printer – A4, Multifunction	Annexure 2''d
	Class Room Projectors	Annexure 2''e
	Online UPS – 5 kva, 4Hrs Backup	Annexure 2''f
	Entry Level Server with Win. Server 2008 including 60 CAL	Annexure 2''g
	Notebook Computers	Annexure 4''c
	Color Laser Printers – A4 size	Annexure 2''h
	Flatbed Scanners for paperless office	Annexure 2''i
	10 inch Mobile Device for Virtual Class Configuration	Annexure 2''o
	UPS 600 VA, 30 mins backup	Annexure 4''f
	Midrange Server	Annexure 2''l
	Dot Matrix Printer	Annexure 2''m
	MS Office Latest	---
	Visual presenter/ Digital Presenter with HDMI output	Annexure 4''b
	Projector with minimum 5000 lumens brightness and Video Display Unit of suitable size for the meeting hall of size 63 ft X 23 ft	Annexure 4''d
	5 KVA 2 Hours backup UPS – 01 number	Annexure 4''e
	1 KVA 2 Hours backup UPS – 10 numbers	Annexure 4''f
	Multi-function Duplex Printers – 5 numbers	Annexure 4''h
	ADF Scanners – 4' numbers	Annexure 4''i

## Annexure\_2'': ICT for Effective Administration

- a.
- b.
- c. **Desktop Computer and Printer Specifications for College Library Automation using eGranthalaya Software**

### (i) Desktop Computer

Feature	Specifications
Processor	AMD A8-5500 (Quad core, 3.2 GHz, 4MB cache) / Intel Core i3 3220 (Dual Core 3.30GHz, 3MB cache ) or higher
Chipset/Mother board	OEM mother board supporting above mentioned processor
Memory	4 GB DDR3 (1333 MHz or higher) & Non ECC Expandable to 8 GB
Hard Disk Drive & Controller	500 GB SATA-III 6.0-Gb/s Hard Drive, 7200 RPM with pre failure alerts.
Optical Drive	DVD Writer
Graphics	Intel® HD Graphics or AMD or any equivalent <b>graphics integrated to Processor.</b>
Ethernet	Integrated Gigabit Network Connection 10/100/1000
Bays	3 Bays:
Slots	Minimum 3 PCI Slots :
Ports	6 USB (4 rear + 2 front) + 2 PS/2 ports <u>OR</u> 8 USB (4 rear + 4 front) , 1 RJ-45, 1 VGA, 1 Audio in/out,
Form Factor	Micro ATX Tower
Power Supply	Minimum 200-watt power supply
Monitor	18.5" LED monitor:
Keyboard	PS/2 or USB 104/107 keys keyboard
Mouse	PS/2 or USB 2 button optical scroll mouse
Software	Remote diagnostics, Back Up and Recovery software Nudi 4.0 Kannada Software to be preloaded before delivery
Operating Systems	Microsoft Windows 8.x Professional preloaded with recovery media.
Preloaded Software	Norton or McAfee or eTrust or e-Scan or Fore front or Trend Micro or PC Tool or Quick heal Antivirus or equivalent (Latest Version) with 3 year license.
Security	1. Removable media boot control 2. Serial, Parallel & USB Interface Control 3. Power-On Password 4. Setup Password
Compliance & Certification	For OEM : ISO 9001 : 2008, For PC : Windows8.x/7/Linux certification, Energy Star 5.0 For Monitor : TCO 05 or latest
Warranty	3 Years Comprehensive on site

**Additional Requirements:**

- a. MS Office 2013 or recent Academic Standard Edition with License and media
- b. Anti-Virus with 3 year subscription (Preferred brands: Symantec Endpoint Protection/ McAfee/ eTrust/ ESET Smart Security).

**(ii) A4 Laser Printer**

<b>Particulars</b>	<b>Minimum technical specification</b>
Print speed black (normal, A4)	33 PPM +/- 3 PPM
Print quality black (best)	Up to 1200 x 1200 dpi or 1440000 dpi
Print technology	Laser
Duty cycle (monthly, A4)	>35000 pages
Standard memory	128 MB or higher
Processor speed	500 MHz or better
Standard printer languages	PCL 5e/6
Network Interface	High speed USB 2.0, Ethernet 10/100 Base TX & Wi-Fi
Standard paper trays	1
Maximum paper trays	1
Paper handling standard/ input	250-sheet input tray
Paper handling standard/output	150-sheet
Duplex print options	Automatic
Media sizes supported	A4, A5, A6, B5, postcards, envelopes (C5, DL, B5)
Media types supported	Paper (laser, plain, photo, rough, vellum), envelopes, labels, cardstock, transparencies, postcards
Standard connectivity	Hi speed USB 2.0 port or higher
Warranty	3 Years Comprehensive on site

**d. Multi-Function (Print, Scan, Copy) Laser Printer**

<b>Features</b>	<b>SPECIFICATIONS</b>
<b>Multifunction device</b>	Print, copy, scan
<b>Speed-copy, print-a4 size</b>	30 +/-5 ppm
<b>First print speed</b>	< 10 seconds TTFP
<b>Print resolution</b>	Resolution 1200 x 600 dpi
<b>Memory</b>	64 MB standard
<b>USB</b>	USB 2.0
<b>Paper capacity</b>	Input std / min Sheets: 250
<b>Toner Cartridge type and Yield</b>	Toner Cartridge without Smart Chip, 2000 Print Cartridge Yield (Minimum)
<b>Operation</b>	Should be able to be operated on 500 VA UPS Power backup

e. **Class room/ MultimediaProjector**

<b>Projection System:</b>	LCD/DLP
<b>Light Source</b>	Solid-state/ Non-Mercury Type
<b>Native Resolution</b>	XGA 1280 x 800
<b>Brightness</b>	2500 ANSI Lumens (Minimum)
<b>I/O Connectors</b>	HDMI, VGA, S-Video, Composite, Audio In 3.5mm, Audio Out 3.5mm, VGA Out, RJ45, RS232,
<b>Light Source Life (Eco/Bright Mode)</b>	20,000 hours
<b>Remote Control</b>	Full function remote
<b>Power Consumption</b>	Less than 250W
<b>Speaker (Watts)</b>	10
<b>Warranty</b>	3 years on Projector Electronics and 5 years or 10000 hours on Projector light source. Warranty shall be comprehensive on-site. Brightness not less than 75% of the stated value till the end of warranty period.
<b>Wireless connectivity between PC and Projector</b>	Yes
<b><u>Additional Requirements:</u></b>	
5 meter Power Cable, 5 meter VGA Cable, 5 meter HDMI and USB Cable, Suitable Ceiling Mount and Good quality 6ft x 4ft Glass beaded insta-lock Projector Screen	

f. **UPS: 5 KVA On-line UPS**

<b>Type</b>	Online
<b>Capacity</b>	5 KVA
<b>Backup Time</b>	4 hrs.
<b>Input Frequency</b>	50 Hz +/- 5%
<b>Input Voltage</b>	160 V - 270 V (3 phase 380V to 415V for 10 KVA UPS)
<b>Output Voltage</b>	230 V +/- 1% V
<b>Output Frequency</b>	50 Hz +/- 0.2 Hz.
<b>Input Power Factor</b>	> 0.9
<b>Power Factor</b>	0.8 lag to unity PF
<b>Waveform</b>	Pure Sine Wave
<b>Alarm</b>	On Battery, Low Battery, UPS Over Load
<b>Technology</b>	IGBT based PWM technology with isolation transformer
<b>Computer interface</b>	Software with communication interface for monitoring the health of the UPS. Automatic shutdown under Windows 2000, Windows 98/XP (Prof) & Diagnostics.
<b>Battery make</b>	Preferred brands: Southern/Prime/Racket/ Exide / Relicell/ SF Sonic (ISO/TUV Certified)
<b>Battery Type</b>	Tubular C-10 rating only (Sealed Lead Acid type for 1kva UPS)
<b>Battery AH</b>	Compatible
<b>No. of Batteries</b>	Compatible

<b>DC Voltage (input)</b>	Compatible
<b>VAH</b>	>32000 VAH
<b>Over Load Capacity</b>	150% for 1 minute, 125% for 10 minutes
<b>Inverter Efficiency</b>	90%
<b>Overall Efficiency</b>	85%
<b>Crest Factor</b>	3:1
<b>Regulation</b>	+/- 1%
<b>Switching Frequency</b>	Above 20 KHz
<b>Warranty</b>	3 years on site comprehensive including batteries
<b>Protection</b>	Automatic discharge protection with self-test features, Over Load, Surge protection, Input fault, Cold Start, Low battery, Battery over charge, Output short circuit, Charging current circuit, Inverter over temperature
<b>LCD Display</b>	Output voltage, Output current/Load %, Output frequency, Input Voltage, Battery Voltage
<b>Load Test</b>	At 100% load on Resistive load
<b>THD</b>	< 3% for Linear, < 5% for Non-linear Load
<b>Certification</b>	ISO 9001:2000 & ETDC / CPRI test report

**g. Entry Level Server Computer**

<b>Processor</b>	IntelXeonQuad-core (4 Core)E3-1225, 3.20 GHz, 8 MB or better
<b>Chipset</b>	Intel C226 or better
<b>Standard Memory</b>	8 GBDDR3 SDRAM
<b>Maximum Memory</b>	32 GB
<b>Hard Drives</b>	4TB Minimum
<b>Optical Drive</b>	DVD-Writer
<b>Controller Type</b>	Serial ATA/600
<b>RAID Supported</b>	Yes
<b>RAID Levels</b>	0, 1, 1+0, 5
<b>Number of Total Expansion Bays</b>	4
<b>Number of External 5.25" Bays</b>	1
<b>Number of 3.5" Bays</b>	3
<b>Number of Total Expansion Slots</b>	4
<b>Number of PCI Slots</b>	1
<b>Number of PCI Express x1 Slots</b>	1
<b>Number of PCI Express x16 Slots</b>	2
<b>Graphics Controller Manufacturer</b>	Intel
<b>Graphics Controller Model</b>	HD P4600
<b>Ethernet Technology</b>	Gigabit Ethernet

<b>Total Number of USB Ports</b>	8
<b>VGA</b>	Yes
<b>Operating System</b>	Windows 8.0/8.1 professional
<b>Green Compliant</b>	Yes
<b>Green Compliance Certificate/Authority</b>	ENERGY STAR 1.1, RoHS

**h. Color Laser Printer – A4 size**

<b>Particulars</b>	<b>Minimum technical specification</b>
Print speed black & color	25 PPM +/- 2 PPM(A4)
Resolution	1200 dpi or 144000dpi or better
Print technology	Laser
Standard memory	512 MB
Processor speed	500 MHz or better
Standard printer languages	PCL6,5e
Network Interface	High speed USB 2.0, Ethernet 10/100 Base TX & Wi-Fi
Paper handling standard	250-sheet input tray & 50 sheets multipurpose tray
Duty cycle (monthly, A4)	Up to 50000 pages
Paper handling -output	150-sheet
Duplex print	Automatic
ADF Capacity	40+/-5 Sheets
Media sizes supported	A4, A5, A6, B5, postcards, envelopes (C5, DL, B5)
Media types supported	Paper (laser, plain, photo, rough, vellum), envelopes, labels, cardstock, transparencies, postcards
Warranty	3 Years Comprehensive on site

**i. Flatbed Scanner**

- o Scanning: Flatbed
- o Scan resolution: 2400 dpi resolution,
- o Bit depth: 48-bit
- o Levels of gray scale: 256
- o Scan Speed: colour 10 ppm minimum
- o Scan size: 216 x 297 mm
- o Connectivity: Hi-Speed USB 2.0
- o USB Powered operation: Yes

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**l. Midrange Server Computer**

CPU	One / Two Intel® Xeon® E5-2600 product family processor with 2.5MB per core Cache ; Proposed servers should have Minimum 2.0 Ghz and four Cores per CPU.
Motherboard	Intel® C600 Chipset
Memory	32 GB DDR3 Registered (RDIMM) memory operating at 1333MHz
Bays	Minimum 8 Hot Plug 2.5" hard disk bays / 8 Hot Plug 3.5" hard Disk Bays + CDROM/DVD Bay

Hard disk drive	3 X 146/300 GB SAS Hot plug 2.5" HDDs
Controller	SAS Raid Controller with RAID 0/1/1+0/5/5+0 with 256/512MB battery backed write cache (on-board or in a PCI Express slot).
Networking features	Dual Port Multifunction Gigabit Server Adapters (four ports total, Embedded or Slot based) with TCP/IP Offload Engine, including support for Accelerated iSCSI
Ports	USB 2.0 support With 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
Bus Slots	Min. Five PCI-Express slots (1 x16 PCIe Slot &4 x8 PCIe Slots)
Optical Drive (Internal /External)	DVD/CD-RW combo drive
Power Supply	Redundant Power Supplies
Fans	Redundant Fans
Compliance	FCC Class A, RoHS, CSA
OS Support	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), Oracle Enterprise Linux (OEL), VMware, Citrix XenServer
Warranty	3 year warranty. Pre failure warranty on CPU, Memory and Hard disks
Remote Manageability Software	System remote management software should support browser based Graphical Remote Console
Server Management	The Server Management Software should be of the same brand as of the server supplier.
	Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD. Should support automatic event handling that allows configuring policies to notify failures via e-mail, pager, or SMS gateway or automatic execution of scripts.
	Should help to proactively identify out-of-date BIOS, drivers, and Server Management agents and enable the remote update of system software/firmware components.

### **Server Software**

- **OS:**
  - **Microsoft Windows Server2012**
- **Database Server:**
  - **MySQL Standard (Academic)**
- **Server Monitoring Software**
- **Windows Server Firewall Software**

### **m. Dot Matrix Printer**

Number of Pins	24 pins
Number of columns	136 columns
Printing Speed	LQ: 10 cpi: 100 chars/s, HighSpeed-Draft: 12 cpi: 500 chars/s
PC Interface	RS-232 (optional), USB 2.0, Ethernet interface
Document Feed	Single sheet front and rear, Continuous paper front and rear, Paper output rear
Paper Formats	Sheet Paper (single- and multi-layer), Continuous Paper (single- and multi-layer)
Compatible Operating Systems	Windows 2000, Windows 7, Windows 8, Windows 98, Windows

	Vista, Windows XP, Windows XP x64
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**o. Tablet Computer**

SI No	Description	Specification
1	Processor	1.9GHz Octa Core Processor or higher
2	Network Support	<b>2G</b> and <b>3G</b>
3	SIM	Micro/nano-SIM
4	Display	<b>10.0 inch</b> ; 2560 x 1600 (WQXGA) or higher
5	Sound	Stereo speakers with 3.5mm ear jack
6	Memory	16GB internal memory. Expandability upto 64GB
		<b>Internal (RAM)</b> - 3GB (RAM) or higher
7	Connectivity	Wi-Fi 802.11 a/b/g/n, Bluetooth v4.0 or higher and USB v2.0 port
8	Camera	<b>Primary (Rear)</b> - 8MP (3264 x 2448 pixels) or higher camera with Flash and Auto Focus Feature, <b>Secondary (Front)</b> - 2MP or Higher
9	Operating System	Android Kitkat 4.4 /Microsoft or higher
10	Location Technology	A-GPS
11	Sensors	Accelerometer, Fingerprint Sensor, Gyro Sensor, Geomagnetic Sensor, Hall Sensor, RGB Sensor
14	Battery	7900 mAh or higher battery
15	Weight	Not more than 1000g
16	Warranty	3 Years Warranty

<b>Annexure 4''</b>
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**Appendix 4'':**

**(a) All-in-one Desktop Computer**

- a. CPU b. Chipset: Intel 6 series or batter.
- c. Memory: 4GB 1333 MHZ DDR3 RAM with 16GB Expendability.
- d. Hard Disk Drive: 500GB 7200 rpm or higher.
- e. Monitor: 24" TFT/LED Digital Colour Display.
- f. Keyboard: 104 keys.
- g. Mouse: Optical with USB interface.
- h. Ports: 6 USB Ports (with at least 2 in front), 1 serial audio port for Microphone and head phone in front.
- i. DVD ROM drive: 8X or better DVD ROM Drive.
- j. Networking facility: 10/100/1000 on board integrated network port with Remote booting facility remote system installations, remote wake up.
- k. Operating System: Windows 8 professional preloaded with Media and Documentation and certificate of Authenticity.
- l. OS certification: Windows 8OS certification.

j. Hardware and all software, including anti-virus must be installed, activated and registered in the name of “Commissioner for Collegiate Education” or “Director of Technical Education” prior to the delivery of the systems.

k. Form Factor: All-in-one Desktop

**Additional Requirements:**

- i. MS Office 2013 or recent Academic Standard Edition with License and media
- ii. Anti-Virus with 3 year subscription (Preferred brands: Symantec Endpoint Protection / McAfee / eTrust / ESET Smart Security).

**(b) Digital Presenter (Portable Model)**

- **Camera:**

Image Pick-up Device: 1/3" Pro CMOS, 2.0 MP or better

Resolution : HD or better

Frame rate : Minimum 30 fps

- **Optics:**

Zoom (Optical/Digital) : 7 x/10 x or better

Shooting Area : 210 x 297 mm or more

Focusing : Auto or Manual

- **Other Features:**

Freeze	: Yes
Split Screen	: Yes
Mirror	: Yes
VGA Output	: 1
VGA Input	: 1
USB port	: USB 2.0

**(c) Business/ Commercial Notebook Computer**

1.	Processor	Intel Core i5-4200M processor (Dual core 1.60GHz, 3MB) or AMD A10-7300 (Quad core 1.90 Ghz, 4MB) or equivalent or higher
2.	Chipset	OEM mother board supporting above mentioned processor or equivalent or higher
3.	RAM	1*4 GB DDR3 RAM expandable up to 8GB
4.	Storage	256GB solid state drive
5.	Graphics	Integrated Intel HD /AMD Graphics-Integrated in processor or equivalent
6.	Display	13.x/14.x" TFT Display
7.	Ports	2*USB ports (at least one v2.0 USB port) , 1*DC-in, 2*Audio Jacks, 1*VGA port/ HDMI port, Card Reader
8.	Connectivity	Integrated WLAN 802.11 b/g/n, Wireless Display and Bluetooth
9.	Keyboard and Touchpad	Keyboard with Backlit Keys for better visibility, Multi-touch touch pad
10.	Optical Drive	DVD RW Internal/ External
11.	Operating System	Microsoft Windows 8 professional preloaded.
12.	Certification	Energy Star 5.0, Windows 8, ISO 9001:2008 certificate for OEM
13.	Battery backup	Minimum 7.0 Hours
14.	Weight	< 1.3 Kg including battery
15.	Warranty	3 years comprehensive onsite warranty (including batteries).

16.	Carry case	Carry Case should be provided
17.	Software	Anti-Virus with 3 year subscription (Preferred brands: Symantec Endpoint Protection / McAfee / eTrust / ESET NOD32)
		Microsoft Office 2013 Standard Academic/ Student Edition

**(d) Multimedia Projector**

<b>Display System</b>	LCD/ DLP
<b>Native Resolution</b>	WUXGA - 1920 x 1200
<b>Format</b>	NTSC 3.58, 4.43; PAL 60, M, N; SECAM
<b>Brightness</b>	5000 Lumens
<b>Contrast Ratio</b>	2000:1
Zoom	1.5x or more
Ceiling Mountable	Yes
Rear Screen Projection	Yes
Inputs/Outputs	1x HDMI Video (Input); 1x 15-pin VGA Video (Input) 1x 15-pin VGA Video (Output); 1x RCA Composite Video (Input); 1x
<b>Additional Requirements:</b>	
5 meter Power Cable, 5 meter VGA Cable, 5 meter HDMI Cable, Suitable Ceiling Mount and Good quality 8ft x 6ft Glass beaded insta-lock Projector Screen and tripod stand, Suitable spare Lamp	

**(e) UPS: 5 KVA On-line UPS**

Type	Online
Capacity	5 KVA
Backup Time	4 hrs.
Input Frequency	50 Hz +/- 5%
Input Voltage	160 V - 270 V (3 phase 380V to 415V for 10 KVA UPS)
Output Voltage	230 V +/- 1% V
Output Frequency	50 Hz +/- 0.2 Hz.
Input Power Factor	> 0.9
Power Factor	0.8 lag to unity PF
Waveform	Pure Sine Wave
Alarm	On Battery, Low Battery, UPS Over Load
Technology	IGBT based PWM technology with isolation transformer
Computer interface	Software with communication interface for monitoring the health of the UPS. Automatic shutdown under Windows 2000, Windows 98/XP (Prof) & Diagnostics.
Battery make	Preferred brands: Southern/Prime/Racket/ Exide / Relicell/ SF Sonic (ISO/TUV Certified)
Battery Type	Tubular C-10 rating only (Sealed Lead Acid type for 1kva UPS)
Battery AH	Compatible
No. of Batteries	Compatible

DC Voltage (input)	Compatible
VAH	Compatible with UPS Capacity and Backup Time
Over Load Capacity	150% for 1 minute, 125% for 10 minutes
Inverter Efficiency	90%
Overall Efficiency	85%
Crest Factor	3:1
Regulation	+/- 1%
Switching Frequency	Above 20 KHz
Warranty	3 years on site comprehensive including batteries
Protection	Automatic discharge protection with self-test features, Over Load, Surge protection, Input fault, Cold Start, Low battery, Battery over charge, Output short circuit, Charging current circuit, Inverter over temperature
LCD Display	Output voltage, Output current/Load %, Output frequency, Input Voltage, Battery Voltage
Load Test	At 100% load on Resistive load
THD	< 3% for Linear, < 5% for Non-linear Load
Certification	ISO 9001:2000 & ETDC / CPRI test report

**(f) 1KVA UPS**

<b>Feature</b>	<b>Specifications</b>
<b>CAPACITY</b>	
VA	600VA/ 1KVA
<b>INPUT</b>	
Single Phase	
Voltage	230VAC
Voltage Range	140 300VAC
Frequency Range	> 40 (Auto Sensing)
<b>OUTPUT</b>	
Voltage	230VAC
Voltage Regulation (Batt. Mode)	+/- 10%
Frequency	50Hz
Frequency Regulation (Batt. Mode)	+/- 1 Hz
Output Waveform	Modified Sine wave
<b>BATTERY</b>	
Battery Type	Sealed Lead Acid
Backup time at a PC load(120w)	15-20 minutes (for 600VA), 1 hour (for 1KVA)
Recharge Time	6 hours to 90% after complete discharge
<b>TRANSFER TIME</b>	
Typical	4 - 8 ms
<b>INDICATOR</b>	
AC Mode	Green lighting
Battery Mode	Green flashing
<b>AUDIBLE ALARM</b>	
Low Battery	Sounding every second
Overload	Sounding every 0.5 second
Fault	Continuously Sounding
<b>PROTECTION</b>	
Full Protection	Discharge, overcharge, and overload protection

Noise Level	Less than 40dB
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**(h) Multi-Function (Print, Scan, Copy) Duplex Laser Printer**

Features	SPECIFICATIONS
<b>Multifunction device</b>	Print, copy, scan
<b>Speed-copy,print-a4 size</b>	30 +/-5 ppm
<b>First print speed</b>	< 10 seconds TTFP
<b>Print resolution</b>	Resolution 1200 x 600 dpi
<b>Memory</b>	64 MB standard
<b>USB</b>	USB 2.0
<b>Paper capacity</b>	Input std / min Sheets: 250
<b>Toner Cartridge type and Yield</b>	Toner Cartridge without Smart Chip, 2000 Print Cartridge Yield (Minimum)
<b>Operation</b>	Should be able to be operated on 500 VA UPS Power backup

**(i) ADF Scanner**

Scanning: Automatic Document Feed, Duplex/ two sided scanning

Scan resolution, optical: Minimum 600 dpi

ADF: 50 sheets

Bit depth: 48-bit

Levels of gray scale: 256

Scan Speed: ADF, A4 size colour: 20 ppm

Scan size: Minimum 21 x 29 cm

Connectivity: Hi-Speed USB 2.0