HP Network Switches

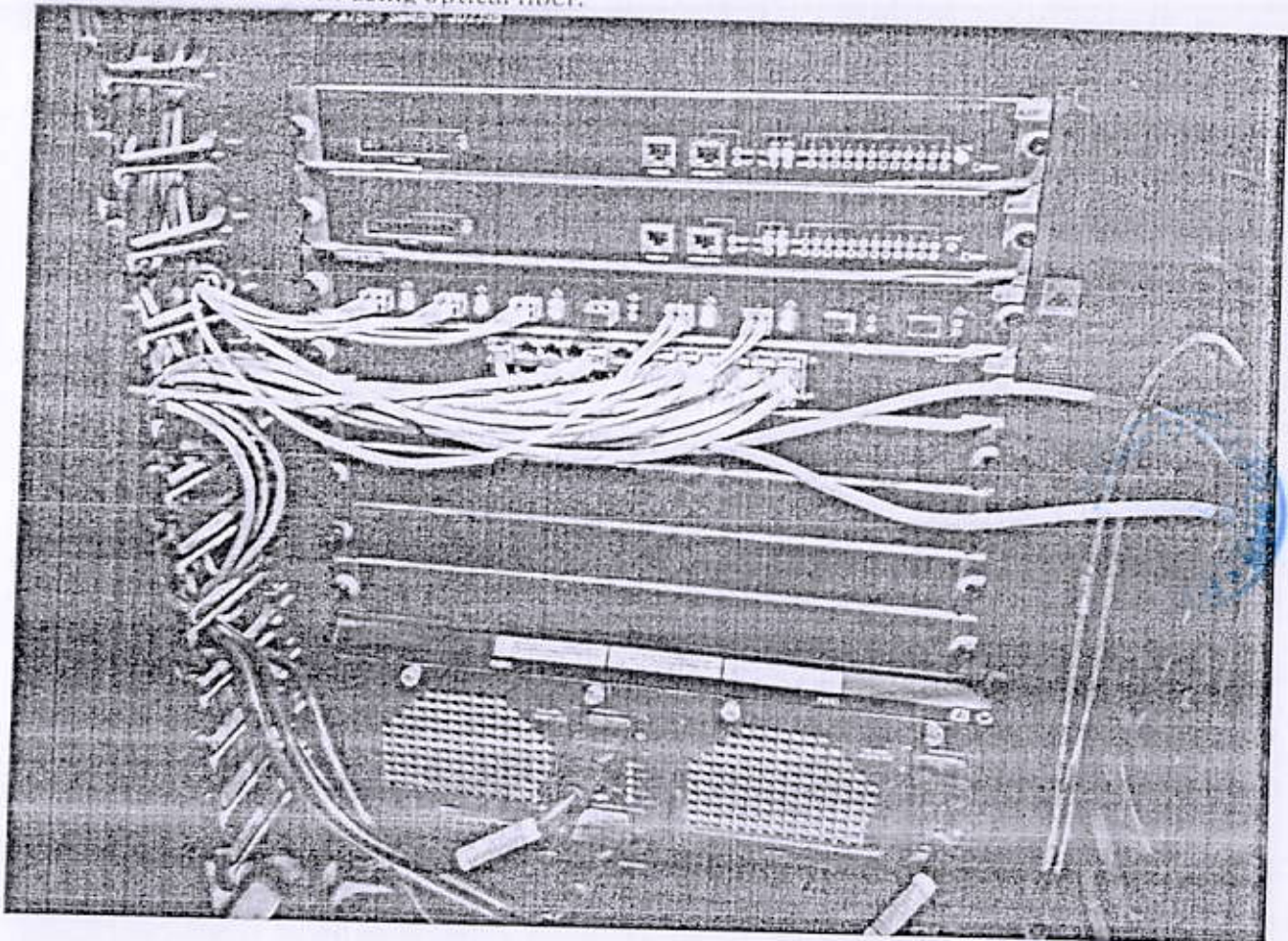## SOP / Guidelines

1. Introduction:

All networking and configuration of HP Switches is done by Technical Experts of the HP. Generally, there is no day to day task performed on switches. Working on switches is quite complex and IT Admin should have prior knowledge and hands on experience to understand the logic & concept of Network switch because switches do not have Graphical User Interface and all networking will be done using Command Line interface. This document is covering general introduction of switches used in RNBGU Network, Network diagram provided by HP and login and configuration of VLAN in switches.

All switch is dependent on the configuration of its previous switch, so putting wrong commands on switch will affect whole network. So, the IT Admin is advised to be in touch with HP Technical expert while performing any task on Switches.

Types of Network Switch Used in RNBGU:
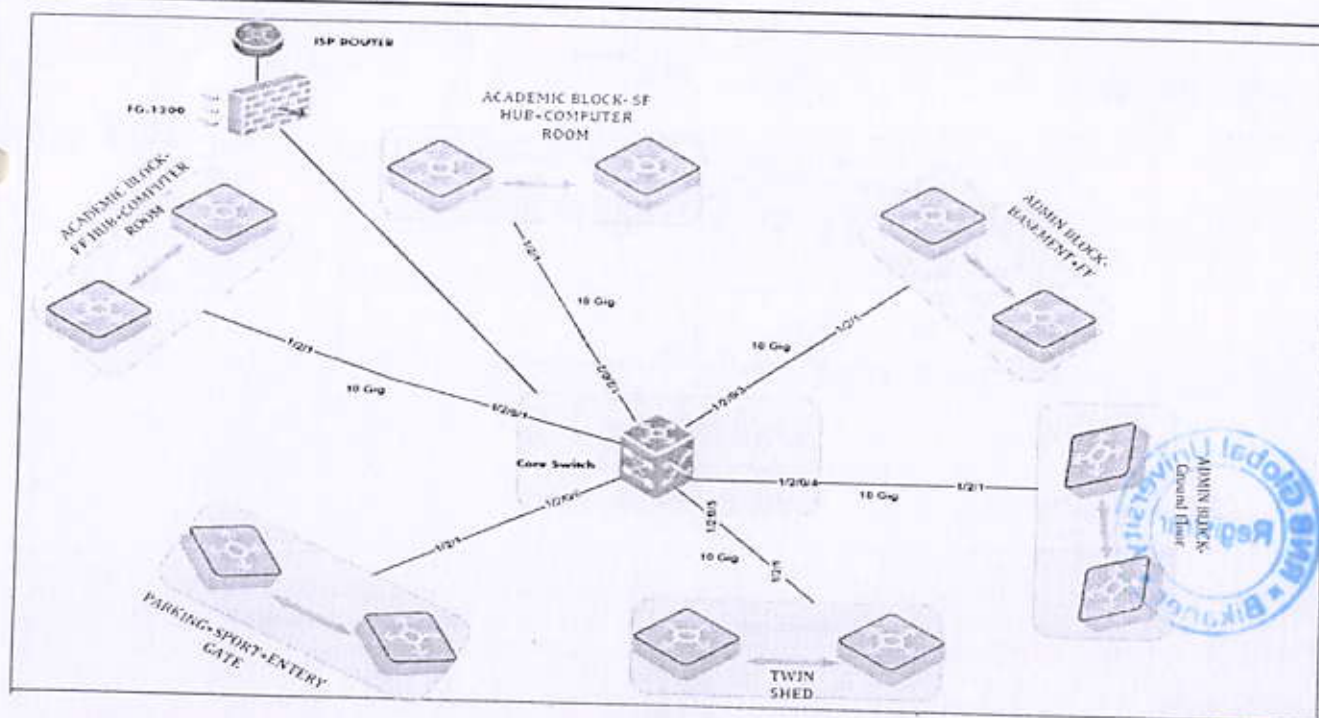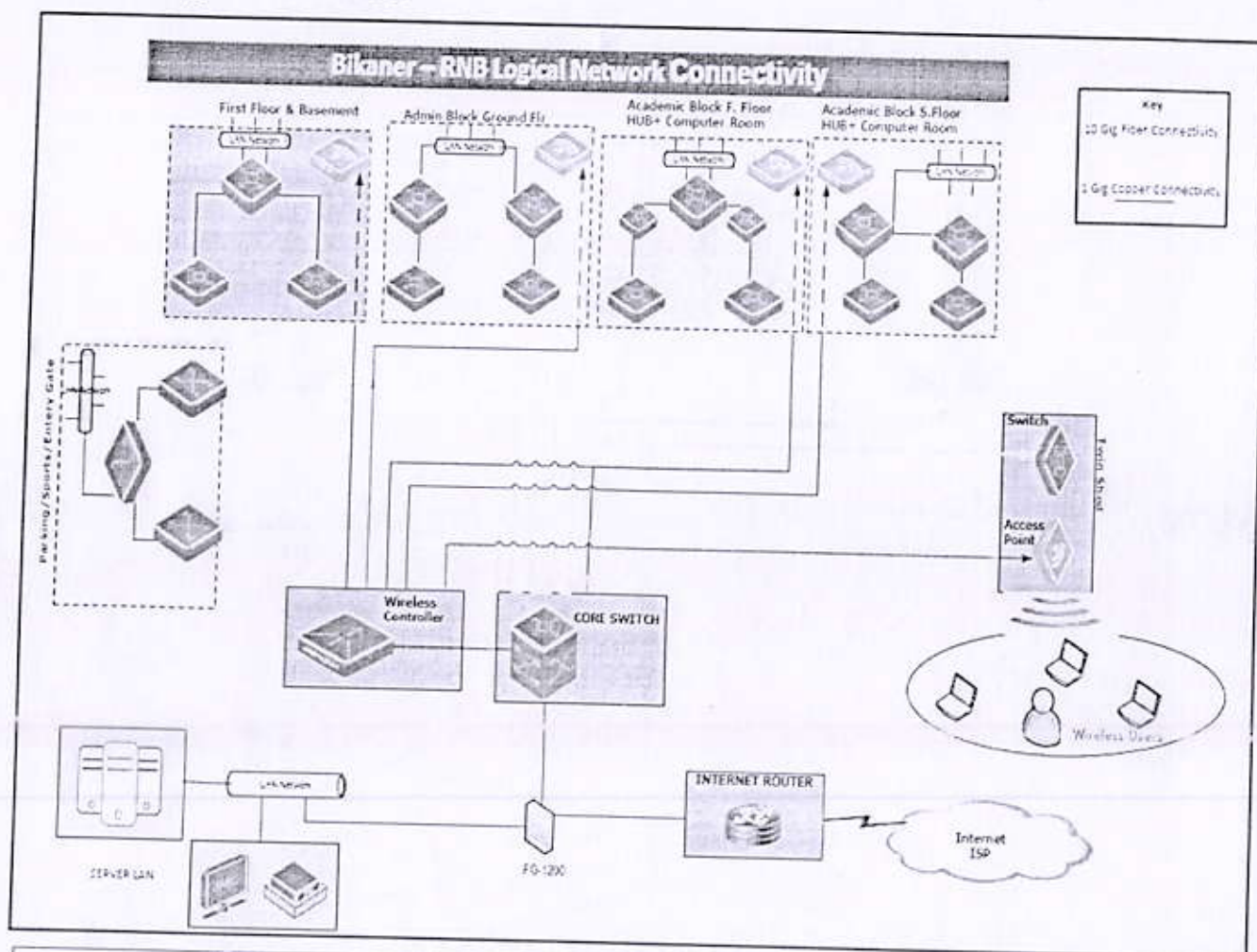
a. **Core Switch HP 7506:**

This switch is the main/Core switch of the RNBGU internal network. Major component like Firewall, Wireless controller connected to this switch. Network racks and Server rooms are directly connected to this switch using optical fiber.

Network Diagrams of RNBGU

Bikaner – RNB Logical Network Connectivity

First Floor & Basement | Admin Block Ground Flr | Academic Block F. Floor HUB+ Computer Room | Academic Block S.Floor HUB+ Computer Room

Key
- 10 Gig Fiber Connectivity
- 1 Gig Copper Connectivity

Parking/Sports/Entry Gate

Switch — Twin Shed
Access Point

Wireless Controller — CORE SWITCH

Wireless Users

SERVER LAN

FG-1200

INTERNET ROUTER

Internet ISP

ISP ROUTER

FG-1200

ACADEMIC BLOCK- SF HUB+COMPUTER ROOM

ACADEMIC BLOCK- FF HUB+COMPUTER ROOM

ADMIN BLOCK- BASEMENT+FF

Core Switch

PARKING+SPORT+ENTERY GATE

TWIN SHED

ADMIN BLOCK- Ground Floor

Backbone VLAN and IP Subnet Detail:

- Only single VLAN is communicating as layer-3 in between core and respective DB switches IRF. Like VLAN 1008 is layer-3 vlan between core and Academic floor DB switch and having /29 IP subnet to create a layer 3 interface.
- SVI interface is created in between core and DB switches.
- Trunk interface is configured along with one 10 gig.
- Only single respective VLAN is allowed over the trunk between core and DB switches as layer 3.
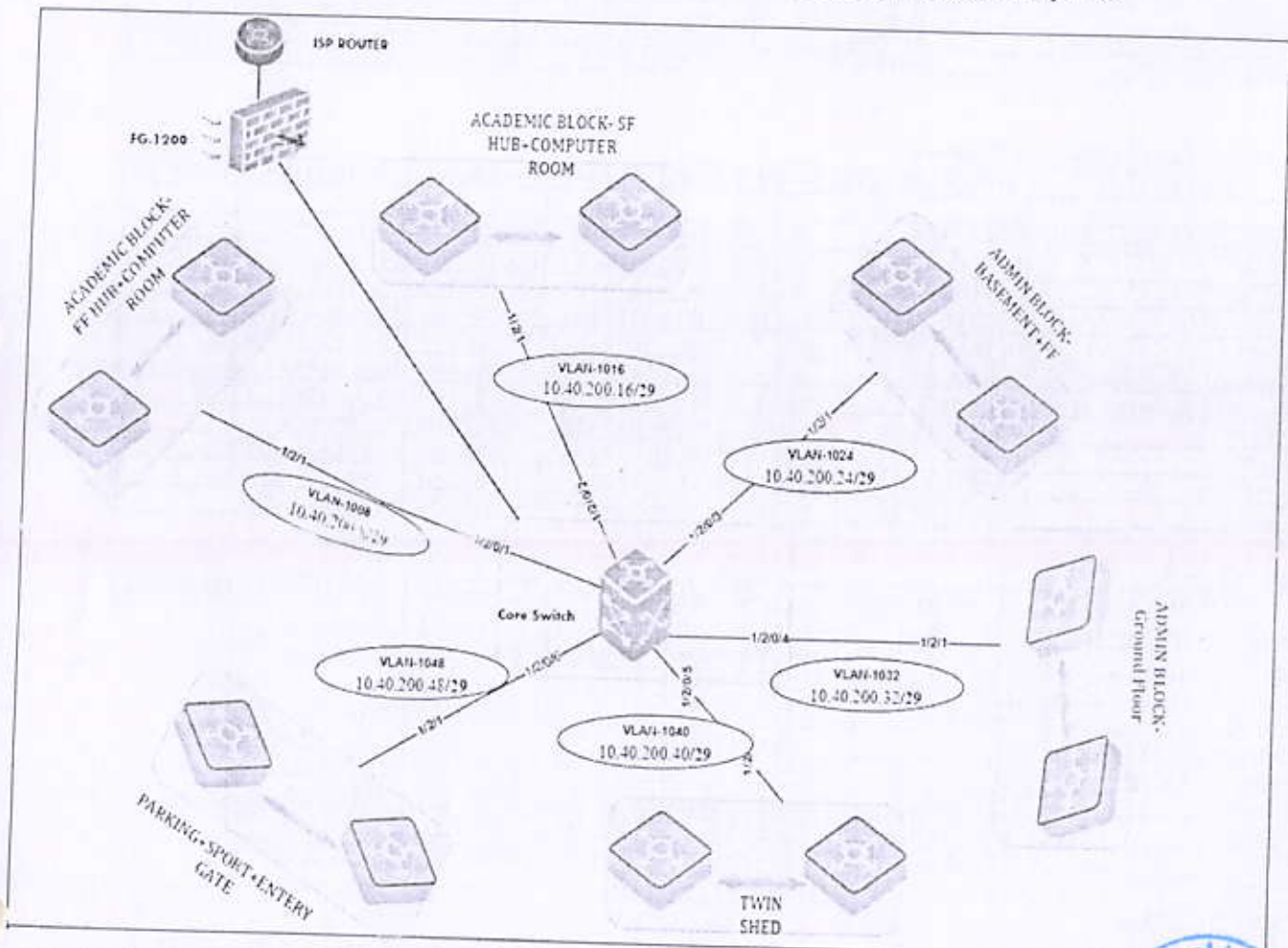
Network Diagram for RSTP Design Diag. example:

ANNEXURE - 3

hp
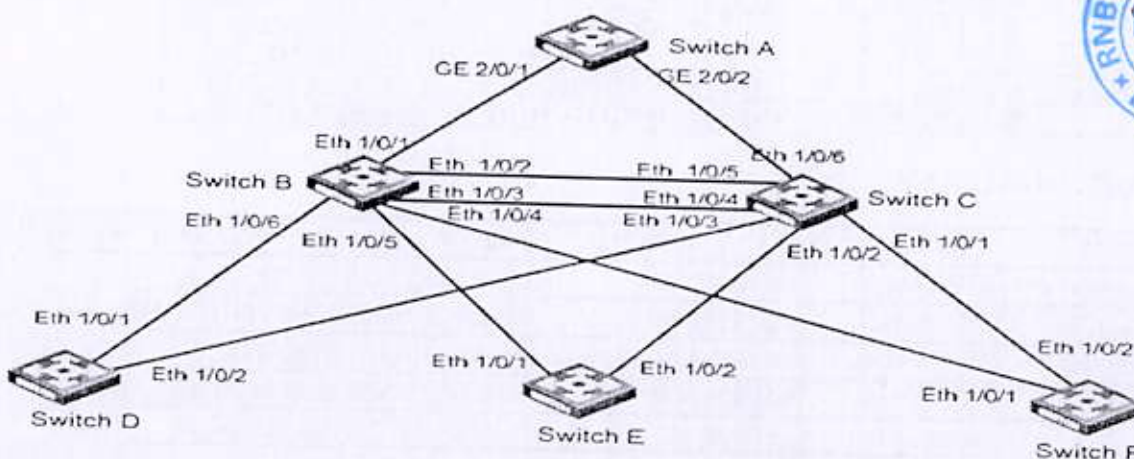
RBFS Global University, Bikaner
Technical Proposal for
Network, Security & IP Surveillance

RBFS Global University, Bikaner

Prepared by: HP Technology Consulting
Date Prepared: Wednesday, May 20, 2015

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Logical Network Connectivity

The initial BOM is made keeping in mind the overall components being proposed. To keep the complexity and costing in control we are proposing single fiber cables.

Surveillance: Since there were some unpleasant instances which may occurr, hence to keep an eye on the overall campus, CCTV has been proposed. The number of cameras are not going to perform a carpet coverage however they are good enough to work as a deterrent which will definitely help to reduce the thefts and unwanted situations.

Wireless: Since students will access internet / content over cloud via wireless using their laptops, wireless network is a must require. HP has conducted survey to come up with the wireless design. There will be indoor as well as outdoor access points as per the requirement. One Wireless access controller is positioned in phase 1, later this device may get procured to work in 1+1 or N+1 as university grows.

4.1   Passive Networking

Optical Fiber:

Below are number of nodes / cameras agreed for outside campus

Zone Name	Number of Cameras	STP / Fiber
1. Parking	N/A	Fiber from Admin Room
1.1 Parking Enclosure	4	STP
2. Guard Area	N/A	Fiber from Parking enclosure
2.1 Entrance Gate	4	STP
3. Sports Complex	N/A	Fiber from Guard Area
3.1 Sports complex enclosure	2	STP
4. Twin Shed	4	STP
5. Top of Admin Block, Academic Block and Twin Shed	4	STP

4.2   Switching

We are proposing the two layer switching in the network to decrease complexities in the network and decreasing the hop count. There will be one core switches which will be hosted in Server room. This switch will connect directly to access switches on 10G fiber ports and from switch to last mile is on 1000 mbps. Below are the details of switches and location mapping.

Sr. No	Location Name	No Of Switches	Switch Proposed
	Admin Block		
1	Server Room(Core Switch)	1	HP 7506 Chassis Switch
2	Server Room(First Floor and Basement Nodes)	2	HP 5130 24G POE+ 4SFP+ EI Switch
3	Ground Floor Left Side Area	2	HP 5130 24G – 4SFP+ EI Switch HP 5130 24G POE+ 4SFP+ EI Switch
4	Ground Floor Right Side Area	2	HP 5130 48G – 4SFP+ EI Switch HP 5130 24G POE+ 4SFP+ EI Switch
5	Twin Shed Hub Rack	1	HP 5130 48G – 4SFP+ EI Switch HP 5130 24G POE+ 4SFP+ EI Switch
	Academic Block		
1	First Floor Hub Room	3	HP 5130-24G-PoE+-4SFP+ EI Switch(2) HP 5130-24G-4SFP+ EI Switch
2	First Floor Computer Room	2	HP 5130-24G-4SFP+ EI Switch HP 5130-48G-4SFP+ EI Switch
3	Second Floor Hub Room	2	HP 5130-24G-PoE+-4SFP+ EI Switch(2)
4	Second Floor Computer Room	2	HP 5130-24G-4SFP+ EI Switch HP 5130-48G-4SFP+ EI Switch
	Parking Area		
1	Parking Enclosure	1	HP 2530-24G-PoE+-2SFP+ Switch
	Guard Room / Entry Gate Room		
1	Guard Room Enclosure	1	HP 2530-24G-PoE+-2SFP+ Switch
	Sports Area		
1	Sports Area Enclosure	1	HP 2530-24G-PoE+-2SFP+ Switch

- Day/Night(ICR), 2D-DNR, AWB, AGC, BLC
- 3.6mm Fixed lens
- IT Range of 20 meters, IP66, IK 10, POE
- Mobile Software: iCMOB, gCMOB, wCMOB
- CMS Software: KVMS Pro, vOptimus Pro
- H.264 MJPEG dual-stream encoding
- Max 25fps@1080p Resolution

4.3.3 Indoor Bullet Camera (3 MP FULL HD IR)

Main Features:
- 1/3" 3Megapixel progressive scan CMOS Image Sensor
- Max 12fps@3MP
- H.264 and MJPEG Dual-Stream encoding
- DWDR, Day/Night(ICR), 2D-DNR, AWB, AGC, BLC
- 3.6mm fixed lens
- IR Range of 30 meters, IP66, POE
- Mobile Software: iCMOB, gCMOB, wCMOB
- CMS Software: KVMS Pro, vOptimus Pro
- Max 25fps@1080p Resolution

4.3.4 2MP Full HD IP PTZ Camera

Main Features

- 1/2.8" CMOS Image Sensor
- Powerful 30x Optical & 16X Digital Zoom
- DWDR, Day/Night (ICR), Ultra DNR
- Up to 255 Presets, 8 tour, 5 pattern, 5 Auto Scan
- Max 240 /s pan speed, 360 degree endless pas rotation
- IR range of 100 Mtr

5   Network Architecture

The overall network architecture has been designed with few design considerations that core switch has redundant supervisor and redundancy at the power level to make sure failure rate is minimized. All the core components will directly terminate on core switch. High level design is shown and described below.

As detailed earlier in Network Architecture, direct link from router will be terminated in the firewall. The following diagram is depicting the same:
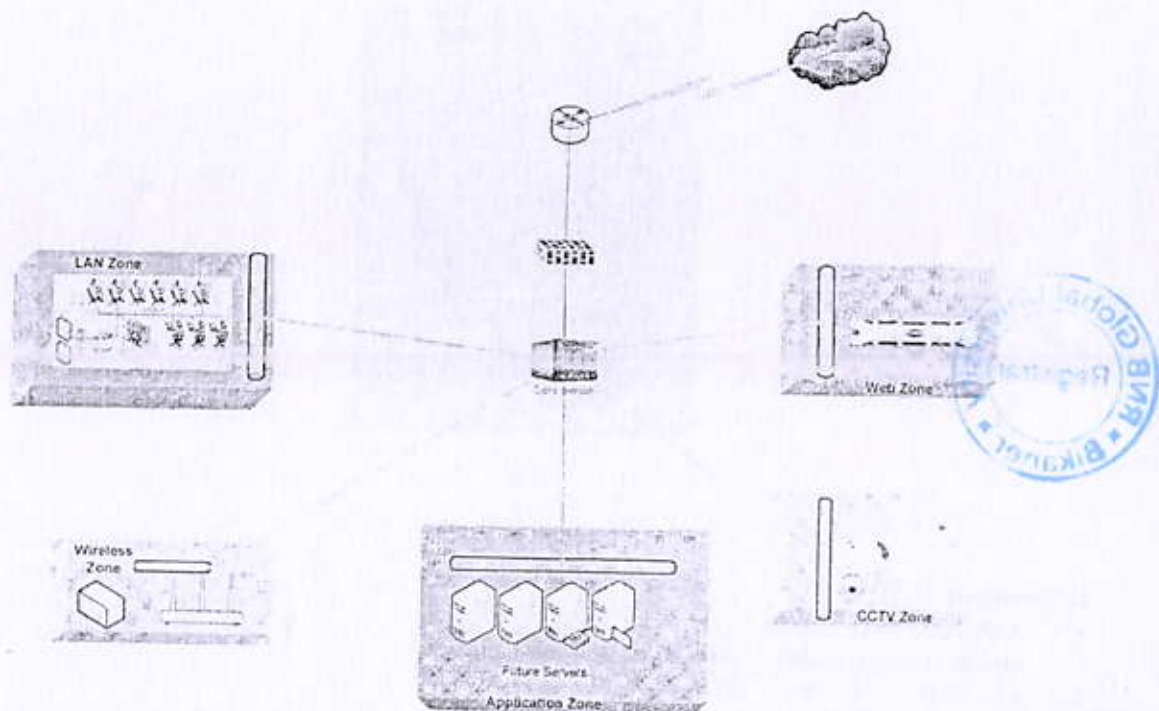
5.1.1   App Zone/ LAN Zone/Web Zone / Wireless Zone

- Core switch shall connect to the following
    - LAN Zone
    - Application Zone
    - Wireless Zone
    - CCTV Zone
    - Web Zone
- Internet connectivity shall happen with the UTM which will directly connect to the core switch.
- From core to access layer 10G fiber connectivity is there
- From access to user layer 1G copper

5.2   Core Switch – 7506

The HP 7500 Switch Series comprises modular, multilayer chassis switches that meet the evolving needs of integrated services networks. The switches can be deployed in multiple network environments including the enterprise LAN core, aggregation layer, and wiring closet edge. They offer 40GbE connectivity and cost

The HP 5130 EI Switch Series is SDN ready with OpenFlow 1.3 support, can be managed with HP Intelligent Management Center (IMC) for a single view of your entire network.
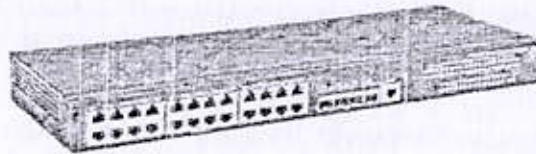
Differentiator

Three models of 5130 are proposed basis on the usage

- HP 5130-24G-POE 4SFP+ EI Switch (24 10/100/1000Base-T ports, 4 SFP+ ports, 1400 watt inline power)
- HP 5130-48G-4SFP+ EI Switch (48 10/100/1000Base-T ports, 4 SFP+ ports)
- HP 5130-24G-4SFP+ EI Switch(24 10/100/1000 Base-T Ports, 4 SFP+ ports)

Ports

- 24 & 48 Ports RJ-45 autosensing 10/100/1000 ports
- 4 SFP+ fixed 10000 SFP+ ports Included

5.4   Access Switch – 2530 24 Port POE+

The HP 2530 Switches Series provides security, reliability, and ease of use for enterprise edge, branch office, and SMB deployments. Fully managed switches deliver full Layer 2 capabilities with optional PoE+, 10GbE uplinks, enhanced access security, traffic prioritization, sFlow, IPv6 host support, and include Limited Lifetime Warranty 2.0 with 3 years 24x7 phone support.

The HP 2530 Switch Series is easy to use and deploy, and can be manages with the HP Intelligent Management Center (IMC) for a single view of your entire network.

2530 Switches we are positioning in three locations in the outside environment.

1. Parking Area
2. Guard Room
3. Sports Area

Differentiator

- The HP 2530-24G-PoE+-2SFP+ Switch is a fully managed layer 2 switch with 24 10/100/1000 PoE+ ports and 2 SFP+ slots

Ports

- 24 RJ-45 autosensing 10/100/1000 PoE+ ports
- 2 SFP+ fixed 1000/10000 SFP+ ports Included

5.5   Wireless Access Point

- Ports: 1 RJ-45 autosensing 10/100/1000 port
- Mounting: Outdoor IP67 and NEMA 4X;Includes hardware for pole and wall mount applications
- Antenna: External Factored

5.6   HP 760 Unified Wired-WLAN Switch Series

The HP MSM Controller Series works in unison with IEEE 802.11a/b/g/n and .11 ac HP and MSM access points and access devices to deliver a cost effective high-performance networking solution for the mid-size enterprise campus. The enhanced architecture supports next generation standards, RF optimization and flexible distribution models for unparalleled performance, reliability and ease of deployment.

The solution provides comprehensive security, threat protection and high availability to provide business continuity.

Differentiator

- With the MSM760 Access Controller, HP offers more flexibility for supporting their wireless environment. The MSM760 has flexibility in the number and type of MSM Access Points that it can support (40-200 APs) and from 802.11a/b/g to 802.11n.

Ports

- 2 RJ-45 autosensing 10/100/1000 ports Included

5.6.1   Node Breakup – Cameras & WIFI

S.No	Description of Area	Bullet	Dome	PTZ	AP's
	A. Ground Floor (ACADEMIC BLOCK)				
1	Wide Passage	3			2
2	Zoology B.Sc.				
3	Chemistry Lab - 1,2 & 3				
4	Lift Lobby				
5	Botany B.Sc.				
6	Waiting Lounge				
7	Faculty Rooms		1		
8	Class Room-1				1
9	Class Room 2				
10	Dark Room				
11	Physics Lab-1				
12	Pantry				

17	Room				
18	Stairs				
19	Pantry				
20	Multy Purpose Room				
21	Corridors	6			5
	D. Third Floor (ACADEMIC BLOCK)				
1	Class Room-11				
2	Class Room-12				
3	Class Room-13				
4	Class Room-14				
5	Class Room-15				
6	Prof Room-1				
7	Prof Room-2				
8	Prof Room-3				
9	Camp. Lab-III				
10	Pantry/Canteen	2			
11	Railing/Elevation				
12	Electronic Lab-III				
13	Tutorial-03				
14	Lab-05				
15	Room				
16	Boys Common Room/Electronic Lab-4				
17	Passage				
18	Waiting Lounge/Passage				
19	Cutout				
20	Stairs				
21	Sports Room	2			
22	Corridors	5			10
	E. Basement Floor (ADMIN BLOCK-SERVER ROOM)				
1	CCTV Monitoring Room		1		
2	Server Room		1		
3	Staff Room		1		
4	Near UPS Room		1		
5	Examination Room				
6	Basement Hall for Storage	4			
	F. Ground Floor (ADMIN BLOCK -)				
1	Office Area	2			
2	Dean Office				
3	P.A Cabin		1		1
4	Courseling Room-1				
5	Courseling Room-2				
6	Conference Room		1		1
7	Placement		1		
8	Waiting-01	1			1

	Total				
	Admin Blocks Port				
	Extra for Indoor Coverage	Nil	Nil	Nil	4
	Total indoor Network, Voice, CCTV & WIFI	66	25	0	51
	Outdoor Ports for CCTV+ WiFi				
	Parking Area				
1	Parking Boundary	2		2	
	Entry Gate				
1	Entry and Exit	4			
	Admin Block				
1	Top of Admin Block				
	Academic Block			2	2
1	Top of Academic Block				
	Twin Shed			1	2
1	Twin Shed (Outside)	4			
2	Twin Shed (Top)			1	
	Sports Boundary Wall			1	
1	Sports Complex Boundary Wall			2	
	Total Inside & Outside Ports for CCTV+ Wifi	76	25	8	55

5.7 HP IMC

HP Intelligent Management Center (IMC) software is a modular comprehensive resource management platform. With its extensive device support, IMC software provides true end-to-end management for the entire network, and entire operation cycle. An optional IMC module, HP IMC Wireless Services Manager (WSM) software provides unified management of wired and wireless networks, adding network management functions into existing wired network management systems. IMC WSM software offers wireless LAN (WLAN) device configuration, topology, performance monitoring, RF heat mapping, and WLAN service reports. IMC WSM software facilitates centralized control over your wireless network, even if it is geographically dispersed. This reduces the time needed to deploy configuration changes and provides uniformity throughout your WLAN infrastructure.

5.7.1 Features and benefits

NEW WLAN device management
IMC Wireless Services Manager (WSM) software supports the HP MSM series of WLAN devices, including controllers, fit access points (APs), and fat APs; it also supports the Cisco wireless infrastructure
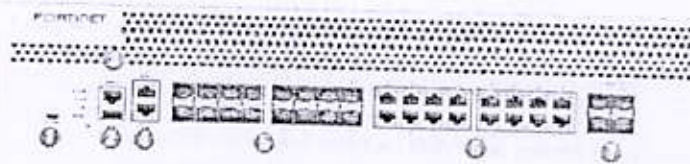
WLAN device management
- access controller list
- access controller detail information
- fit/fat AP list
- fit/fat AP detail information

Fortigate 1200 D
1. USB Management Port
2. USB Port
3. Console Port
4. 2xGE RJ45 Ports
5. 16xGE SFP Ports
6. 16xGE RJ45 Ports
7. 4X 10GE SFP+ Slots

Fortigate – 1200D UTM

Organizations deploying the NP (Network Processor) 6 powered FortiGate 1000 Series firewalls at their data center will enjoy superior protection and performance with industry-leading, high capacity firewall technologies that deliver exceptional throughput and ultra-low latency, enabling the security, flexibility, scalability and manageability expected on a core platform. These firewalls come with numerous high-speed 40 GE and 10 GE interfaces which are ideal for segmenting network physically. Running on the latest FortiOS, these platform are virtualization and cloud-ready. They support next generation data center architectures, multi-tenant requirements, provide APIs for rapid orchestration and easy integration with third-party ecosystems. This box is capable of delivering advanced Features like

- Superiors Firewall Througput - 52 GBPS
- Impressive throughput IPS – 11 GBPS
- High speed, high density ports
- SSL-VPN throughput 3.6 Gbps
- Concurrent Sessions – 11 Million
- New Sessions – 240,000

As per RBFS requirement to terminate 1G NKN connectivity, 1200D would suffice that kind of connection and will be able to provide advanced features for RBFS.

7   Bill of Material

This section lists the complete bill of material for all components which will be supplied and deployed by HP. Each sub-section has all the part codes listed along with the quantities.

Sno	Description	Qty
1	3 MP Vandal Dome IR, Fixed Camera: 1/3" 3MP PS CMOS Image Sensor. Mobile Software	45

24	HP 425 wireless 802.11n (WW) 8 Pack AP	6
25	HP 425 wireless 802.11n (WW) AP	3
26	HP E-MSM466-R Dual Radio 802.11n AP (WW)	4
27	HP Outdoor Omni 6dBi/2.4GHz 3 Elmnt Ant	4
28	HP Outdoor Omni 8dBi/5GHz 3 Elmnt Ant	4
29	HP Antenna Lightning Arrester	24

Sno	Description	Qty
	Network Security	
30	Fortinet 1200D with 3 years support	1
	TOTAL PRICE	

Sno	Description	Qty
32	CAT-6 STP Cable Box	5
33	Cat6 STP Jack	36
34	FACE PLATE BRITISH STYLE, 2 PORT (WHITE) Shuttered	18
35	24-port unloaded Modular Jack Panel- Straight	6
36	CAT6 STP RJ45-RJ45 UTP Patch Cords, BLUE 4 Feet	18
37	CAT6 STP RJ45-RJ45 UTP Patch Cords BLUE 7 Feet	18
38	6 Core Outdoor Fiber Optic Cable SM	3000
39	12 Port SM Loaded LIU Including Adapter Plate & Adapter & Pigtail	5
40	24 Port SM Loaded LIU Including Adapter Plate & Adapter & Pigtail	1
41	SC-LC Style Fiber Patch Cord SM	14
42	Racks - 15 U, Refrigerated Rack Enclosure	2
43	Rack – 12U, Rack Enclosure	1
45	Passive Services	1

11. CCTV equipment's like cameras, DSS, NAS are covered under return replacement for 3 years. Which means faulty device shall be brought to nearest CP Plus factory and it will be replaced and pickup will also be arranged.
12. Total cameras solution is for 109 cameras and additional 20 Dome, 10 Bullet and 1 PTZ is factored as per RBFS request, any deviation in storage will be catered later as per RBFS. Services for additional components will be paid on actuals as per agreed rates
13. NAS Storage is sized basis 12FPS @ 2MP recording for one month
14. UTM is sized for max 1G internet pipe. Currently RBFS has 20 mbps pipe.
15. Erecting poles for CCTV in the field and top of academic, admin and twin shed is assumed to be provided by RBFS. HP will recommend the size and shape of poles as per requirement.

10 Scope Exclusions

The areas that are out of scope for this engagement include, but are not limited to, the following:

- Any major work related to decommissioning (Lifting/Shifting) of existing Network or network components etc.
- Design and implementation of any Application/Database components unless explicitly stated as being in scope.
- Review of any third-party software or unauthorized or unlicensed software.
- Any damage/theft of any network components, passive cables, CCTV cameras, or any other components would be RBFS's responsibility. In case of a damage, reusability of same equipment would be HP's decision.
- Reusing any existing component for integration with new components for any technology.
- Design and configuration of the storage infrastructure for the solution.
- Design / Troubleshooting and configuration of ISP Routers.
- Dismantling or re-erecting of any poles for CCTV

11 Project Management and Rollout Methodology

This section describes HP's approach and methodology for the project management and rollout of the project as required by RBFS

The key design considerations for effective Governance of this project are:

- Adequate Governance processes and people need to be there so that project is completed within the timeframe identified
- Minimum downtime for the overall project since the production will be running parallel to this project.

11.1 HP Project Management Methodology

HP's Global Program Management Architectures framework shows the four key process areas that we combine to manage programs at both the enterprise and individual levels so individual pieces work together to advance progress against your critical business goals:

- Governance – Establishes clear roles, responsibilities, and accountabilities for overseeing all organizational constituents, including executive leaders and program managers or enterprise managers

11.3.2 RBFS Responsibilities

- Assign a Project sponsor / Project manager who:
  - Is available to HP personnel throughout the life of the project
  - Acts as an escalation point when conflicts cannot be resolved by the Project manager
  - Responsible and available to HP for all Client aspects of this Project
  - Authorized to make all decisions relative to the Project, including identification and assignment of Client resources
  - Will review and is authorized to sign Status Reports, Material Receipts, signoffs, and approve project changes
  - Responsible for acceptance of Deliverables, if any
  - Authorized to approve Project changes
  - HP PMO helps Customer Project Manager to develop the communication plan and End user communication will be handled by RBFS PM
- Access required to carry out the migration will be provided by RBFS.
- RBFS to provide necessary electrical connections where we have to deploy racks and switches and PTZ cameras.
- RBFS is responsible for all public DNS changes
- The detailed list of IP addresses will be provided by the RBFS, HP may provide suggestions
- The detailed list of DHCP scopes will be provided by the RBFS
- Adequate and necessary VPN connectivity shall be provided for offshore tasks if required.
- RBFS will provide details about existing Business model, Change request, Escalation model other related processes to HP PMO
- RBFS will assign person in identified technologies to help HP implementation team in carrying the assessment on need basis
- Permissions needed for the implementation will be discussed with the customer during the designing phase. It is customer responsibility to take to various approval board to implement/provide the necessary permission prior to the implementations.
- Responsible for the accuracy, completeness, and the timely provision of all information provided by Client. If information is incomplete or incorrect, any delay and anything required to correct problems created by the use of such incomplete or inaccurate information will be treated as a Client requested Change Request to the statement of work and subject to the Change Process.
- RBFS is responsible for schedule management, communication management and execution.
- To identify and provide information on other related projects and their timelines to the HP resource, which might affect this project.
- To undertake all end user communications.

11.3.3 HP Project Manager

HP's delivery team will be led by a Project Manager. The Project Manager will have the overall accountability and responsibility for contract and service management to RBFS.

Following are the roles and responsibilities of the HP Project Manager:
- Establish engagement standards and maintain compliance.
- Monitor service levels, milestones and deliverables.
- Manage and control engagement scope and issues.
- Manage day-to-day operations and budget.

direct communication may be made between corresponding levels between the organizations. For e.g. HP – representative will communicate with the RBFS –representative. All formal communication will be through respective project managers only.

In case of complex communication requirements it is preferred that this be performed through individual one level above. For e.g. in the second example mentioned above the HP – Deployment Engineer can alternately work through HP Account Manager or HP Solution Architect.

Most of the communications would normally have multiple recipients. Reports would typically fall in this category. While communication about issues it is preferred that it be addressed to all those who should be aware or likely to have a role in resolution.

11.3.6   Communication Media

The following Communication Media will normally be used with the project and would be considered formal unless specifically disclaimed.

- Email communication including attached documents originating from the individual's official mailbox. For e.g. an email from Hotmail account of HP Program Manager has no official value but the same email from his hp.com mailbox will be considered formal.

11.4   Project plan

The detailed project plan will be made and submitted after subsequent discussions with the RBFS officials after the project kickoff. HP understands that the project needs to be completed within a total of 10 weeks' timeframe which would cover hardware delivery along with implementation

For example, we will plan to complete the hardware deliveries within span of 4-5 weeks, so that balance 5 weeks (out of total 10 weeks) is utilized for Solution Implementation.

11.5 Payment Milestones

Milestones	Action	Payment
Week 1: PO honoring	Validation of T&C and legal	NIL
Week 2: Respective Vendor Ordering	Passive, Active and CCTV unit orders confirmation	NIL
Week 4: Ready to ship hardware	Before delivery, ready to ship material	100%
Week 10: Implementation, UAT and Signoff	Completion of Testing and User Acceptance Testing, 100% of services	100

12 HP Terms and Conditions.

Standard HP Terms and Conditions is circulated as different document

HP Wireless Network

SOP / Guidelines

1. Introduction

The complete Wi-Fi network of RNBGU is designed and configured by HP, it consists HP MSM 760 wireless controller, HP indoor and outdoor Access points. This document is covering the topics like configuration and binding of wireless access points, changing the password of Wi-Fi SSIDs (i.e. RNBGU-Faculty etc.), Basic Configuration in Wireless Access Controller.
Following is the introduction of the components:

a. HP MSM 760 Wireless Controller:

This is the core component of RNBGU Wireless network, all access points and wireless network is managed by this equipment. IP address of this equipment is **10.40.210.10**, which will later use in Access point configuration.

It consists 2 LAN ports, LAN Port is connected to HP core Switch on Gigabit Port no. 6 and another port is internet port connected directly on ISP (i.e. Vodafone) to create a separate LAN for Guest, so that guest cannot access the internal network of RNBGU. This is the part of HP network design to create a DMZ in the network, for security reasons.

The Guest network is also useful when some major fault occurs in firewall, IT admin can provide temporary access to Wireless users by sharing Guest Wi-Fi Password but after connecting to this network the user cannot access internal resources like FTP Server, Camera Access etc.
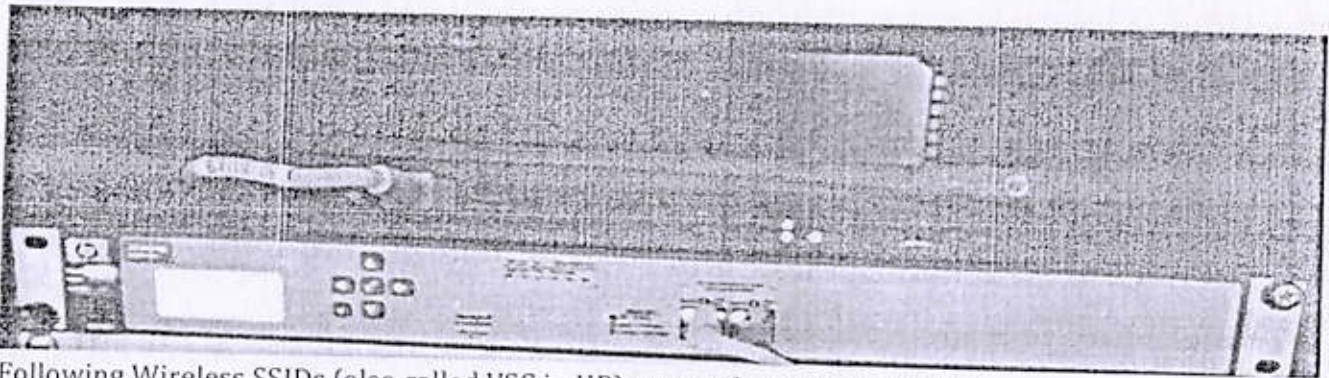
Following Wireless SSIDs (also called VSC in HP) are configured for RNBGU:

RNBGU-HMGMT - This wireless network is dedicated to Higher Management (i.e. Vice Chairpersons) of the RNBGU.

RNBGU-Faculty – This wireless network is dedicated to Faculty members of RNBGU.

RNBGU-Admin – This wireless network is dedicated to RNBGU Laptops, if any other admin staff required access to this in his/her personal laptop then approval required for the same.

RNBGU-Student – This wireless network is dedicated to students of RNBGU.

RNBGU-Guest – This wireless network is for guest, before giving access to any guest, approval is required.

School- This is temporary wireless network, IT admin should only enable this during outside school/college/institution visit, to provide them access to Facebook in their mobile devices, after completion of visit the IT Admin should disable this network.

Total 60 AP connection license are purchased by RNBGU

Status	Name	Expiration	Amount
O	Supported authenticated APs	Permanent	60

b. HP MSM 425 Indoor AP:

HP MSM 425 Access Point is used for indoor wireless network. Currently installed in all location of RNBGU Campus where wireless access is required. This access point needs to be connected on PoE ports to get power.

c. HP MSM 466 Outdoor AP:

This Access point is generally used for outdoor location, because it has high signal strength and IP67 rated, so it can handle rain and bad weather. 2 omni directional antenna and PoE adaptor was separately delivered by HP to run this access point. This access point cannot start by direct connection to PoE switch, it requires PoE adaptor as intermediate to deliver power. This Access point is currently (i.e. 01-03-2019) installed in Admin roof, Academic Roof and Boys Hostel First Floor.
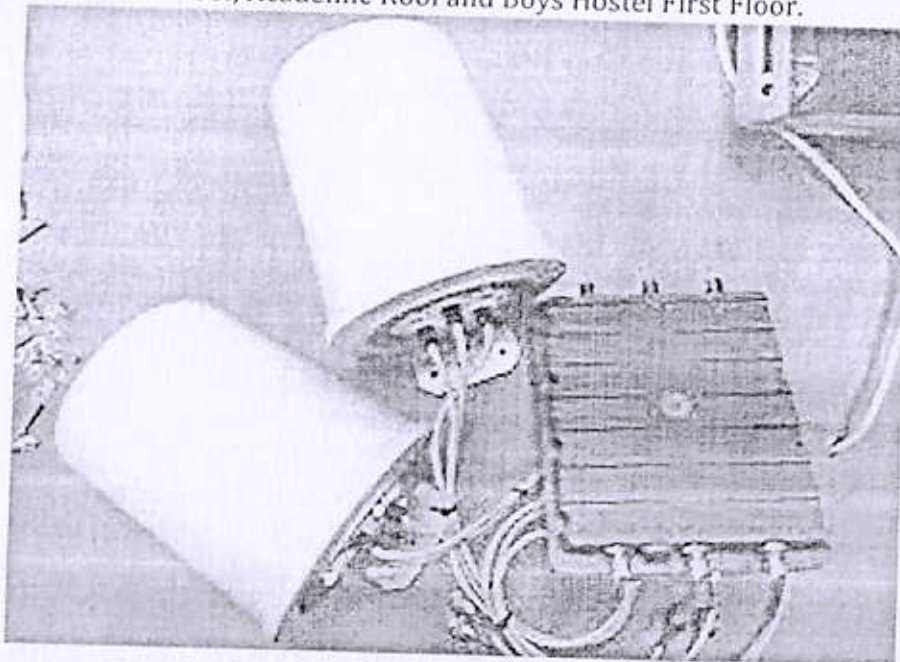
2. Configuration & Installation of Access Point

2.1 IP Pools Assigned for Access Points:

The IT Admin should maintain a sheet for used IP address for Wi-Fi AP, So while configuring new AP we can use unused IP to avoid IP conflicts. In RNBGU Network location wise IP Pools are assigned for the Access Point configuration, The IP Pools are:

Admin Block: 10.10.121.31 to 10.10.121.254
Academic Block: 10.10.101.31 to 10.10.101.254
Twin Shed: 10.10.141.31 to 10.10.141.254
Campus Gate, Parking and Sports: 10.10.161.31 to 10.10.161.254
Boys Hostel: Connected to Academic Block via RF so Academic Block IP Pool will use.
Girls Hostel: Connected to Admin Block Via RF so Admin Block IP Pool will use.
Currently used IP for Wi-Fi Access Points:

Location	IP Address	AP Type	AP Name
Academic Ground Floor	10.10.101.33	Indoor	ACDGF-AP01
Academic First Floor	10.10.101.47	Indoor	ACDFF-AP01
	10.10.101.31	Indoor	ACDFF-AP02
Academic Second Floor	10.10.101.34	Indoor	ACDSF-AP01
	10.10.101.35	Indoor	ACDSF-AP02
	10.10.101.36	Indoor	ACDSF-AP03
Academic Third Floor	10.10.101.61	Indoor	ACDTF-AP01
	10.10.101.62	Indoor	ACDTF-AP02
	10.10.101.63	Indoor	ACDTF-AP03
	10.10.101.64	Indoor	ACDTF-AP04
	10.10.101.65	Indoor	ACDTF-AP05
Academic Block Roof	10.10.101.74	Outdoor	ACD-OAP01
Admin Ground Floor	10.10.121.31	Indoor	ADMGF-AP01
	10.10.121.32	Indoor	ADMGF-AP02
	10.10.121.33	Indoor	ADMGF-AP03
	10.10.121.34	Indoor	ADMGF-AP04
Admin First Floor	10.10.121.45	Indoor	ADMFF-AP01
	10.10.121.46	Indoor	ADMFF-AP02
	10.10.121.47	Indoor	ADMFF-AP03
	10.10.121.48	Indoor	ADMFF-AP04
Admin Block Roof	10.10.124.74	Outdoor	ADM-OAP01
PEB Block	10.10.141.31	Indoor	TWS-AP01
	10.10.141.32	Indoor	TWS-AP02
Boys Hostel	10.10.101.32	Indoor	BH-GF-AP01
	10.10.101.76	Outdoor	BH-FF-AP01
Girls Hostel	10.10.121.51	Indoor	GH-FF-AP01

AGREEMENT FOR SERVICES

THIS AGREEMENT FOR SERVICES is made effective as of the Effective Date (specified in Schedule 1) by and between **Tata Consultancy Services Limited**, a company incorporated under the Companies Act 1956, with its corporate office located at TCS House, Raveline Street, 21 D, S. Marg, Fort, Mumbai 400001, herein after referred as 'TCS' (which expression shall include its successors and assigns) and the Customer entity named in the signature block below, with other details thereof set out in Schedule 1- Contract Details, herein after referred as a **'Customer'** (which expressions shall, unless the context requires otherwise, includes its successor in business and permitted assigns). In this Agreement, TCS and Customer are collectively referred as "Parties" and individually as a "Party".

WHEREAS TCS has developed a proprietary business concept titled as 'IT-as-a-Service' aimed at delivering an integrated suite of end-to-end business solutions and cloud services to small and medium businesses (SMB), involves use of shared software applications owned or licensed and hosted by TCS at a centralized TCS facilities and/or deployed at Customer facilities. AND WHEREAS Customer who has been introduced to TCS by the entity/person named in Schedule 1, desires to avail of certain services of TCS as more fully described in Schedule 2 and TCS agrees to provide such services in accordance with the terms and conditions set out in this Agreement.

NOW THIS AGREEMENT WITNESSETH:

1. Definitions :
All capitalized terms used in this Agreement or any attachment thereof, unless the context specifically requires otherwise, shall have the meaning assigned to each of the terms given in Exhibit A hereto.

2. Scope of Services:
2.1 Services: The scope of Services to be provided by TCS to Customer is as described in **Schedule 2.** TCS will host on TCS's Services Environment at TCS designated location(s), and/or deploy on designated Customer systems at Customer designated location(s) identified in **Schedule 2,** the TCS Application System, for provision of such Services. TCS reserves the right to modify the Services Environment without impacting the Services. The Services may commence on the Service Commencement Date identified in Schedule 1, unless the Parties otherwise agree. If the Parties desire to modify the Scope of Services in Schedule 2 in any manner, the Parties agree that such change, to **Schedule 2** and its corresponding change to other Schedules hereto shall be implemented in accordance with the Change Control Procedure defined in Schedule 5 hereto.

2.2 Permitted Use of Services: Customer's use of TCS Applications System shall always be subject to the Licensing Conditions stipulated in Schedule 3. In case the TCS Application System includes a third party software (identified in **Schedule 2**), and where such third party licensor requires Customer to sign a license agreement, the Customer agrees to execute such third party software license agreement, which shall prevail upon any conflicting provisions herein. Such third party software license agreement shall become a part of this Agreement.

3. Obligations of Customer:
Customer undertakes to comply with all the access authorization and access controls for the Customer's access to the Services Environment as may be prescribed by TCS. Customer shall limit the access to Services Environment only to the Authorized Users. Each Authorized Users shall follow the security policies and rules as have been notified by TCS. Customer acknowledges that the Services offered by TCS under this Agreement are not the data processing services but are in the nature of information technology infrastructure and application services for Customer's own data processing and business use only and agrees that the Customer shall not, in any way, commercially exploit the Services otherwise. Customer shall be responsible for all activity occurring under its control and shall abide by all applicable local, state, national and foreign laws, treaties and regulations in connection with their use of the Service, including those related to data privacy, international communications and the transmission of technical or personal data. The Customer shall notify TCS immediately of any unauthorized use of the Services or Services Environment. Customer undertakes that all Customer Data will not infringe the intellectual property rights of any third party.

4. Proprietary Rights
All rights, title and interests in and to the Services Environment, TCS Application System and any other material used by TCS in the provision of the Services shall exclusively belong to TCS or its

licensors ("TCS Proprietary Material"). Any and all Intellectual Property Rights with respect to the Services and the TCS Proprietary Material and all modifications, improvements, enhancements, or derivative works made thereto, shall always belong to TCS or its licensors and the Customer shall not be entitled to claim any rights therein. Customer agrees that TCS shall have the right to list Customer name in its marketing material and use Customer logo with respect to such listing and for reference purposes. The Customer acknowledges that the provision of the Services hereunder by TCS shall be on a non-exclusive basis and TCS shall be free at all times to provide the services or perform obligations same or similar to the Services and obligations envisaged hereunder to any of its other clients, either existing or future, and nothing herein shall preclude TCS from providing such services or performing such obligations to its other clients.

5. Compensation
In consideration of the Services hereunder, the Customer shall pay TCS the fees and expenses ("Charges") as specified in Schedule 4. All amounts payable to TCS are exclusive of any Taxes. Customer shall be entitled to deduct from applicable payments to TCS, any tax on TCS' income deductible at source at the rates applicable as per the provisions of Income Tax Act 1961 and provide TCS with evidence or certificate of payment of such tax to the taxing authorities. TCS shall submit invoices to Customer in accordance with the payment schedule in Schedule 4. Customer shall remit payment to TCS within thirty (30) days from the date of invoice. TCS shall invoice and Customer shall make payment, in advance, in accordance with the billing period specified in Schedule 4. If any invoice remains unpaid after the aforesaid period, TCS shall be entitled to recover the unpaid invoices with interest @ 1.5% per month calculated from the payment due date until the recovery is made in full with interest and/or suspend the Services

6. Representations And Warranties
TCS warrants that the Services will be provided in a skillful and workman like manner and in conformity with the specifications described in Schedule 2. Notwithstanding the aforesaid, if any Services are provided by TCS free of charge or are otherwise not chargeable shall be provided on an 'AS IS' basis without any warranties whatsoever. Each Party represents, warrants and covenants to the other that: (i) it is duly organized and validly existing and in good standing under the laws of the state of its incorporation or formation; (ii) it has the full right and authority to enter into and that this Agreement constitutes a legal, valid and binding obligation; and (iii) its execution, delivery and performance of this Agreement does not and will not conflict with, or constitute a breach or default under, its charter of organization or any contract or other instrument to which it is a party. EXCEPT AS SET FORTH IN THIS CLAUSE, TCS MAKES NO WARRANTIES TO CUSTOMER, EXPRESS OR IMPLIED, WITH RESPECT TO ANY SERVICES OR DELIVERABLES PROVIDED HEREUNDER OR UNDER SCOPE OF WORK INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR

PURPOSE. ALL SUCH OTHER WARRANTIES ARE HEREBY DISCLAIMED BY TCS.

Customer warrants that, it shall provide all information, material, data and other assistance (including knowledge transition) required by TCS to enable TCS to provide Services to the Customer in accordance with this Agreement. Customer warrants that it shall limit the access to TCS Application System and Hosting Environment only to the Authorized Personnel. Further, Customer warrants that each Authorized Personnel shall follow the security policies and rules as have been notified by TCS. Customer further warrants that the Services are for Customer's own business use only and agrees that the Customer shall not, in any way, commercially exploit the Services otherwise.

Customer warrants to TCS that the materials, data, information and other assistance ('Customer Materials') supplied to TCS or uploaded by Customer on TCS Application System for the purpose of execution of the terms of the Agreement are either Customer owned properties or are properties obtained by Customer under proper intellectual property licenses. Customer further warrants that the said Customer Material provided by Customer or uploaded by the Customer on TCS Application System shall not infringe any intellectual property rights or proprietary rights of any party. Customer further warrants to TCS that Customer Material supplied to TCS or uploaded by Customer on TCS Application System shall not violate any applicable laws and regulations. If the Customer Materials supplied by Customer or uploaded by Customer on TCS Application System are found to infringe the intellectual property rights of any party or is in violation of any law or regulation, then Customer shall defend TCS and its directors, officers and employees from and against any such suit, claim , proceeding and indemnify and hold TCS harmless against all judgment, damages, costs, fine, penalty and expenses (including, reasonable attorney fees).This clause shall survive the termination of this Agreement. However Parties agree that, TCS shall have the right and license to use the Customer Materials for support, testing and enhancement

7. Limitation of Liability
Neither Party shall be liable to the other for any special, indirect, incidental, consequential (including loss of revenue, data and/or profit), exemplary or punitive damages, whether in contract, tort or other theories of law, even if the Party has been advised of the possibility of such damages. The total cumulative liability of either party under this Agreement shall not exceed in aggregate the amount paid to TCS by the Customer for the Service that gives rise to such liability during the twelve month period immediately preceding such claim. The limitation on any Party's liability herein shall not apply to liability for damages, resulting from (i) the wilful misconduct; (ii) breach of the license conditions and obligations in respect of use of TCS Application System; and (iii) breach of confidentiality obligations. TCS shall not be held liable for any delay or failure in its obligations, if and to the extent such delay or failure has resulted from a delay or failure by or on behalf of Customer to perform any of Customer's obligations. In such event, TCS shall be (a) allowed additional time as may be required to perform its obligations, and (b) entitled to charge the Customer for additional costs incurred, if any, as may be mutually agreed upon between the Parties. With respect to Managed Services, it is agreed between the Parties that TCS shall not be liable for any operational losses sustained or incurred by the Customer

8. Confidential Information
Each Party (the "Receiving Party") acknowledges and agrees to maintain the confidentiality of Confidential Information (as hereafter defined) provided by the other Party (the "Disclosing Party") hereunder. The Receiving Party shall not disclose or disseminate the Disclosing Party's Confidential Information to any person other than those employees, agents, contractors, subcontractors and licensees of the Receiving Party, or its affiliates, who have a need to know it in order to assist the Receiving Party in performing its obligations, or to permit the Receiving Party to exercise its rights under this Agreement. In addition, the Receiving Party (i) shall take all such steps to prevent unauthorized access to the Disclosing Party's

Confidential Information, as it takes to protect its own confidential or proprietary information of a similar nature, which steps shall in no event be less than a reasonable standard of care (ii) shall not use the Disclosing Party's Confidential Information or authorize other persons or entities to use the Disclosing Party's Confidential Information, for any purposes other than in connection with performing its obligations or exercising its rights hereunder and (iii) shall require all persons and entities who are provided access to the Disclosing Party's Confidential Information, to execute confidentiality or non-disclosure agreements containing provisions substantially similar to those set forth in this Clause 8. The provisions of this **Clause 8** respecting Confidential Information shall not apply to the extent, but only to the extent, that such Confidential Information is: (a) already known to the Receiving Party free of any restriction at the time it is obtained from the Disclosing Party, (b) subsequently learned from an independent third party free of any restriction and without breach of this provision, (c) is or becomes publicly available through no wrongful act of the Receiving Party or any third party; (d) is independently developed by the Receiving Party without reference to or use of any Confidential Information of the Disclosing Party; or (e) is required to be disclosed pursuant to an applicable law, rule, regulation, government requirement or court order, or the rules of any stock exchange. Upon the Disclosing Party's written request at any time, or following the completion or termination of this Agreement, the Receiving Party shall promptly return to the Disclosing Party, or destroy, all Confidential Information of the Disclosing Party provided under or in connection with this Agreement, including all copies, portions and summaries thereof

9. Processing Norms
Both Parties acknowledge and agree that the provision of certain Services under this Agreement may require TCS to interact with the clients and suppliers of Customer relating to the Services as special agent for and on behalf of the Customer and/or to process transactions, in accordance with the general or special guidelines, norms and instructions ('Processing Norms') provided by Customer and agreed by the Parties. TCS shall be entitled to rely on and act in accordance with any such Processing Norms agreed by the parties and TCS shall incur no liability for claims, loss or damages arising as a result of TCS's compliance with the Processing Norms. Customer agrees to indemnify, defend and hold TCS and its affiliates, their officers and employees involved in the Services, harmless from any and all claims, actions, damages, liabilities, costs and expenses, including but not limited to reasonable attorney's fees and expenses, arising out of or resulting from TCS' compliance with Processing Norms and the Customer's liability arising out of this Clause shall be outside of the liability cap provided in Clause 7. Further, Customer shall be responsible for all activity occurring under its control and shall abide by all applicable local, state, national and foreign laws, treaties and regulations in connection with their use of the Service, including those related to data privacy, international communications and the transmission of technical or personal data

10. Term And Termination

10.1 Term: The term of this Agreement shall commence on the Effective Date and continue for Contract Term specified in Schedule 1, unless terminated earlier in accordance with the provisions herein. The Agreement may be renewed for further term(s) on mutual agreement between the Parties.

10.2 Termination for Material Breach. Either Party may terminate this Agreement immediately by a written notice to the other Party (i) in the event of a material breach by the other Party, by a written notice immediately, if the breach is not curable and by a written notice of 30 days, if the breach is curable and is not cured within the said notice period; or (ii) in the event of any proceedings in bankruptcy, insolvency or winding up filed by or against the other Party or for the appointment of an assignee or equivalent for the benefit of creditors or of a receiver or of any similar proceedings.

10.3 Effect of termination. In the event of termination or expiry of this Agreement, (A) Customer shall (i) forthwith cease to access and/ or use any of TCS Application Systems and Services Environment; (ii) return to TCS any of TCS confidential and proprietary information and material in its possession; and (B) TCS shall (i) return to Customer all confidential and proprietary information of Customer; (ii) if a third party software license is obtained specifically for the Customer under this Agreement and allows Customer to use such software after termination of this Agreement (as specifically identified in Schedule 2), then TCS shall transfer such third party software to Customer on an 'AS IS' basis. Any additional fee if applicable for such transfer shall be borne by the Customer.

11. Non Solicitation

Neither Party will, without the consent of the other Party, employ or offer to employ directly or indirectly any person engaged or previously engaged by the other in any capacity in relation to the project, during the subsistence of this Agreement and until a period of 24 months has expired after the termination or expiry of this Agreement

12. Miscellaneous Provisions

12.1 Independent Contractors and assignment. Each Party to this contract is an independent contracting entity and shall not be deemed an agent, legal representative, joint venture partner or partner of the other. Neither Party is authorized to bind the other to any third person. Customer shall not assign or transfer this Agreement or any obligations hereunder to any third party, without the prior written consent of TCS..

12.2 Governing Law and Dispute Resolution. This Agreement shall be governed by and interpreted in accordance with the laws of India. All disputes or differences whatsoever arising between the Parties, out of or in relation to the construction, meaning and operation or effect of this Agreement or breach thereof, shall be settled amicably. If, however, the Parties are not able to resolve such dispute or difference amicably, the same shall be referred for Arbitration to a sole Arbitrator to be mutually agreed upon, and failing such agreement to an Arbitration tribunal consisting of three arbitrators. Each Party will nominate an arbitrator and these two arbitrators by mutual agreement will appoint the third arbitrator to constitute the Arbitration tribunal. The Arbitration proceedings shall be governed by the provisions of the Arbitration and Conciliation Act 1996. The Arbitration proceedings will be carried out at Mumbai and the award made in pursuance thereof shall be binding on the Parties.

12.3 Entire Agreement. This Agreement sets forth the entire understanding of the Parties and supersedes all prior or simultaneous representations, discussions, negotiations, letters proposals, agreements and understandings between the Parties hereto, with respect to the subject matter hereof. Each Party acknowledges that it has not relied on or been induced to enter into this Agreement by, and to the extent permitted by applicable law, a Party is not liable to another Party in contract or tort or in any other way for, a representation or warranty that is not set out in this Agreement. This Agreement may be amended only by a written instrument signed by a duly authorized representative of each of the Parties. If any provision of this Agreement be held invalid or unenforceable by a competent court, such provision shall be modified to the extent necessary to make it valid and enforceable whilst preserving the intent of the Parties and all other provisions of this Agreement shall remain fully valid and enforceable unless otherwise agreed between the Parties. No provision of this Agreement nor any breach thereof will be considered waived by either Party, unless such waiver is in writing signed on behalf of that Party and no such waiver will constitute a waiver of, or excuse for any other or subsequent breach of this Agreement. Certain provisions of this Agreement which by their very nature ought to survive, shall so survive the termination of this Agreement.

12.4 Force Majeure. Neither Party shall be liable for any failure or delay in the performance of its obligations under this Agreement to the extent such failure or delay is caused by any reason beyond its reasonable control, such as fire, flood, earthquake, elements of nature or acts of God, acts of state, strikes, acts of war, terrorism, riots, civil disorders, rebellions or revolutions, quarantines, embargoes and other similar governmental action (a 'Force Majeure Event'). The affected Party will immediately notify the other by reasonable detail of the Force Majeure Event. If a Force Majeure Event continues for more than 30 days, other Party may, by a written notice to the other Party, terminate this Agreement, without liability.

12.5 TATA Code Of Conduct: The activities of all TCS employees are governed by the Tata Code of Conduct, a copy of which is available at link
http://www.tata.com/aboutus/articles/inside.aspx?artid=NyGNNLHkaAs= Customer agrees to make good faith efforts to notify TCS designated executives of any breach of the Tata Code of Conduct by any TCS personnel relating to this Agreement. TCS in turn undertakes that it will maintain confidentiality of all communication received.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives on the date(s) mentioned below, effective as of the Effective Date.

RNB Global University ("Customer")	Tata Consultancy Services Ltd. ("TCS")
By: Kishan kumar Bij	By:
Name: Kishan kumar Bajaj	Name: Venguswamy Ramaswamy
Title: Vice chairperson	Title: Global Head - Small and Medium Business
Date:-	Date:- 26/05/2015

EXHIBIT A

DEFINITIONS

"**Agreement**" means the Agreement for Services to which this Exhibit is attached, signed between the Parties hereto, and shall include all Exhibits, Schedules, and other attachments attached thereto or referenced therein.

"**Authorized Users**" means only those individuals working for and on behalf of Customer, or for Customer's clients, or individual clients of Customer identified in Schedule 2, who have a bona fide need to have access to TCS Application System in connection with the use of Services by Customer under this Agreement.

"**Customer Data**" means all applicable information, data and materials furnished or made available to TCS and/or introduced in the Services Environment by or on behalf of Customer, using the TCS Application System and/or Services.

"**Confidential Information**" means and include all business strategies, plans and procedures, proprietary information, software program, documentation, tools, processes, methodologies, data and trade secrets; information relating to customers, employees, or business partners and any other designated confidential or proprietary information and materials of the Disclosing Party, its affiliates, clients or suppliers, that may be received or obtained by the Receiving Party as a result of this Agreement. The terms "Disclosing Party" and "Receiving Party" shall have the meaning assigned to each of them in Clause 8.

"**Contract Term**" means the period of contract specified in **Schedule 1**.

"**Computing Environment**" shall mean Customer's computer, hardware, software and operating environment as identified in **Schedule 2** on which the TCS Application System or component thereof shall be installed for Customer's use in accordance with the Use Terms in **Schedule 3.**

"**Effective Date**" means the date on which this Agreement has come into effect, as identified in **Schedule 1.**

"**Equipment**" means certain hardware/software (including networking hardware (MPLS) and software) items identified, if any, in Schedule 2, to be supplied or made available by or on behalf of TCS, outside the Hosting Environment, for use by Customer's Authorised Users strictly for accessing TCS Application System for the purpose of availing of the Services hereunder.

"**Hosting Environment**" means TCS's servers within the facilities and environment managed and utilized by TCS to provide the Services to Customer, including all software, servers, hardware, networks, equipment, and telecommunications facilities and the technology installed within such environment and as described **Schedule 2**.

"**Intellectual Property Rights**" means any and all intellectual property rights and industrial rights of any kind, including without limitation, copyrights, patents, trademarks, design rights and trade secrets and any other form of related protection, statutory or otherwise; wherever in the world subsisting, whether registered or not.

"**Licensing Conditions**" means the terms and conditions applicable for use of the respective items of TCS Application System or third party software, as identified in Schedule 3.

"**Services**" means the services to be performed by or on behalf of TCS under this Agreement as specified in scope of Services in Schedule 2.

"**Services Commencement Date**" means the date as notified in writing by TCS to the Customer on which the Services are agreed to be commenced.

"**Services Environment**" means collectively or severally (as the context may require) the Hosting Environment, TCS Link and Equipment

"**Taxes**" means any sales, use, value added tax, service tax or any other taxes of similar nature or any similar, additional or replacement duty, levy or tax applicable to or in connection with the charges payable or Services rendered under this Agreement, other than tax based on TCS's income.

"**TCS Application System**" means the specific software applications/solutions whether owned or licensed by TCS identified in Schedule 2, which TCS will either host on its Services Environment and/or install on the Customer Environment for the provision of Services under this Agreement. TCS Application System includes, without limitation, proprietary software programs, processes, algorithms, user interfaces, know-how, techniques and other tangible and intangible technical material or information and the technology installed within TCS Application System.

"**TCS Link**" means a link either by way of a link located at a URL or a physical port prescribed by the TCS in Schedule 2 established provided and maintained by TCS, as part of the Services, for connecting to TCS Application System.

SCHEDULE 1

CONTRACT DETAILS

A. The details of the Customer are as follows:

Institute Name	Registered office address	Details of Contact person
RNB Global University	RNB Global CITY Ganganagar Road Bikaner, Rajasthan-334601	Mr. Kishan Kumar Bajaj Vice Chairperson Contact number : 91 151 5156 000 Email : info@rnbglobal.edu.in

Contract Term	Effective Data
3 years from Effective Date	26/05/2015

B. The Customer has been introduced to TCS by the following entity/person:

Name of the entity/person	Registered office address	Details of Contact person
Cache Infotech Pvt Ltd	56, 5th Floor Deepak building , 13 Nehru Place – 110 019	Mr. Alok Gupta Email : alok@cacheinfotech.com

I. **TCS Application systems**

TCS will provide the following applications:

Implementation Services:

Delivers a completely configured system ready for end users to transact and extract output on a day-to-day basis.T

TCS iON Admission Solution
TCS iON Academics Solution
TCS iON Exam and Grading Solution
TCS iON Administrative Services Solution
TCS iON Support Services Solution
TCS iON Smart Identity Management Solution
TCS iON Learning Exchange Solution
TCS iON Helpdesk Solution

II. **Scope Of Services**

Cloud Services

In a Cloud Services environment, business applications as part of the IT-as-a-Service will be hosted, managed and run at TCS Data centers in a secure environment. The customer can access their applications at the Data Centre through a network connection. These applications will be continuously updated by TCS to address the changing technology, business & market needs.

The scope lists the capabilities of the Solution(s). Together with Activation, Customer needs to agree on the capabilities relevant to its business which needs to be finalized.

SrNo.	Solution Name	Hyperlink
1	TCS iON Admission Solution	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/Admission_Module.pdf
2	TCS iON Academics Solution	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/Academics_Module.pdf
3	TCS iON Exam and Grading Solution	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/Exam_and_Grade_Management_Solution.pdf
4	TCS iON Administrative Services Solution	https://www.tcsion.com/dotcom/TCSSMS/Download/solution scope/Administrative_Solution.pdf
5	TCS iON HRMS Solution	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/HRMS_Solution.pdf
6	TCS iON Payroll Solution	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/Payroll_Solution.pdf
7	TCS iON Finance and Accounting Solution	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/F&A_Solution.pdf
8	TCS iON Procurement and Inventory Solution	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/P&I_Solution.pdf
9	TCS iON Smart Identity Management Solution	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/SIMS.pdf
10	TCS iON Learning Exchange Solution*	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/LX.pdf
11	TCS iON Helpdesk Module	https://www.tcsion.com/dotcom/TCSSMB/Download/solution scope/Helpdesk_Module.pdf

* The storage space will be limited to 500 GB

Service levels:

Service availability rate at data center	98% based on quarterly review
Business Hours Support	Mon – Sun between 7:00 – 23:00 hours

Exclusions:

The calculation of the SLA excludes events such as:

- The event has occurred as a result of a Force Majeure or during the implementation of any disaster recovery procedure.
- Any activities and/or outages mutually agreed upon by the parties (planned scheduled downtime).
- The last mile access (Network that connects customer location and Network Service Provider's Point of Presence) or broadband access that is not provided or managed by TCS or its authorized agents.
- The failure of a customer's application, equipment or facilities including any third party equipment.
- Trouble Tickets associated with new installations or upgrades.
- An interruption where the customer elects not to release the service for testing and repair and continues to use it on an impaired basis.
- Interruptions during any period where TCS or its agents are not allowed access to the Customer premises where the access lines are terminated.

(TCS Proprietary and Confidential)

Out of Scope:

TCS is not responsible for any software not provided by TCS
Touch Services is out of scope

Support:

TCS will ensure break-fix support to the applications mentioned in scope of services. Any change request will be administered separately
TCS Support desk can be reached by any of the following:

Toll Free Number	1-800-209-6030
E-mail	ion.servicedesk@tcs.com

Training:

- For Implementation Services

    - TCS ION follows a train-the-trainer approach. A few users of the solution (selected by Customer) will be provided web based training or training by the locally based ION Consultants for free. Duration of this will be up to 3 days at one common location. These users are expected to train others on the solutions, including any ongoing/ repeat training need. Training will be conducted for not more than 8 hours per day and the exact dates will be mutually agreed upon.

    - TCS can also provide instructor led training in a classroom environment. The location of the training can be either customer or TCS premise. Any travelling and lodging expenses incurred by our consultants for the training will be borne by the customer

    - The 1st training is free (excluding travelling and lodging expenses). Subsequent trainings will be at ₹ 25,000 for a batch of 5 users (for upto 3 days), and ₹ 40,000 for a batch of 10 users (for upto 3 days). This is exclusive of the travelling and lodging expenses

    - The training package also includes an online documentation of solutions, and context sensitive Help Assistant for hosted solution and help manuals for On-premise solution

Data Migration:

- Transaction Data migration from existing system of Customer to TCS system is out of scope and will be charged additional and can be taken up on mutual agreement between TCS and Customer.

- However Master data can be uploaded into the new system if customer can provide the data in the format of data templates provided by TCS or TCS can open the system to the customer prior to go-live to enter the master data.

I.   **TCS Designated locations:**

     TCS will host its applications from TCS Data Centre.

II.   **Customer designated locations:**

     None

III. **3ʳᵈ party software incorporated in TCS Application System:**

     None

IV.   **3ʳᵈ party software (if any) obtained specifically for the Customer and to be used by Customer even after termination of Agreement:**

     None

V.   **Authorized Users:**

     The employees (including temporary and contract employees) of the Customer that have been duly designated and authorized to use the TCS Application System

     TCS point of contact: Mr. Manivannan Ranganathan (manivannan.ranganathan@tcs.com)

     Customer Change Champion & Customer Single Point of Contact:
     Name: Ms.Ishneet
     Contact no : 85888 72939/+91 11 4919 9005
     Email : Ishneet.gandhi@rambajajfoundation.org

VI.   **Target Environment:**

     1. **Services Environment**

     a) **Hosting Environment :**

TCS will perform all necessary maintenance and support the operation of the Hosting Environment and the TCS Application System and to provide the Services in accordance with the agreed service levels. TCS will promptly investigate and will make all commercially reasonable efforts to remedy any failure of the Services, Hosting Environment, TCS Application System and/or the TCS Link (defined hereinafter) to operate in good working order in accordance with the provisions of the Agreement.

b) **TCS Link:**

Not Applicable

c) **Equipments:**

Not Applicable

2. **Computing Environment**

TCS recommends the following as minimum configuration to be able to run the TCS application:

- Desktop System with 1 nos. of Intel processor – Dual Core/Core 2 Duo
- Windows XP Professional / Windows 2003 / Windows 7 Professional (32-bit version) Operating System
- Minimum 1 GB RAM
- At least 80 GB SATA disk
- 17-inch monitor
- Standard keyboard and mouse.
- MS Office in the desktops of for key users
- The supported browsers are Internet Explorer 8, Firefox 23 and Chrome 28*.

* Any change in browser version to be used will be communicated to the customer by the TCS.

The network bandwidth sizing at customer site for accessing the TCS Solutions is expected to be approx 400Kbps for 20 concurrent users. The customer has confirmed that an existing Internet link at the site will be used. The customer will upgrade the network bandwidth as per growth in concurrent users.

VII. **Data availability at the various layers:**

a. **Hardware Availability:** State of the art hardware (servers, storage, networking elements) configured in Active-Active or Active-Hot Standby mode ensures High Availability (HA) of our infrastructure elements.

b. **Application Availability:** All application components (Web, Application, Database) are configured in Active-Active mode. This ensures that the application, as well as data is available to the customers with high availability.

c. **Data Availability:** The deployment architecture ensures that the same data is available on multiple servers. In the event of data issues, data can be recreated with no data loss from the other servers.

d. **Backups:** Backups are taken every day and retained for varying periods of time (daily, weekly and yearly). Backed-up data is available off-site. Backup recovery tests are performed at regular intervals to ensure integrity of backups.

e. **Data Format:** In the event of termination of the contract TCS shall give the customer data in either CSV or XLS format in CD or through file transfer.

f. **Disaster Recovery:** A Disaster Recovery Data Center is in operation. Data from the primary data center is mirrored onto the DR Data Center near real-time. Operations will shift to the DR data center in the event of a catastrophic failure of the primary data center. In addition, customers have the ability to, at their convenience, login to the DR data center and verify data availability

APPENDIX-I to Schedule 3
USE TERMS for TCS Application System (TCS proprietary)

These Use Terms will govern the Use by Customer of TCS Application System (more specifically described in Schedule 2), during the Contract Term of the Agreement for Services effective __26/05/2015__ ("Agreement") signed between Customer named herein below and Tata Consultancy Services Limited ("TCS").

1. DEFINITIONS

The following capitalized terms shall have the meaning set forth below for all purposes of this Use Terms:
"**Target Environment**" shall mean Services Environment or Customer Environment, as specified in the Schedule 2 with respect to each component of the TCS Application System. "**Services Environment**" has the meaning ascribed to it in the Agreement. "**Customer Environment**" has the meaning ascribed to it in the Agreement. "**Use**" means using and/or accessing the TCS Application System by the Authorised Users, whether it is installed on Customer Environment or on the Services Environment, for the purposes of executing, processing, transmitting, transferring, loading and storing of data in connection with the Services rendered by the TCS under this Agreement, in terms of this Use Terms. All other capitalized terms used herein but not defined above, shall have the meaning ascribed to them in the Agreement.

2. USAGE RIGHTS AND RESTRICTIONS

2.1 Usage rights: (i) Subject to the terms and conditions set forth in this Use Terms, effective upon the installation of the TCS Application System by TCS or upon TCS permitting access to Customer of the TCS Application System through any means, TCS hereby grants to Customer the right to Use as specifically permitted under this Use Terms and to permit Authorized Users to Use the TCS Application System during the Agreement for Contract Term. The forgoing does not (a) authorize Installation of the TCS Application System other than on Target Environment, (b) permit Use of the TCS Application System for any purpose other than as permitted under this Use Terms, or (c) permit Use of the TCS Application System to any Person other than Authorized User. Any extension or change of the contractual use of the TCS Application System requires TCS' prior written consent and authorization. Customer is responsible to ensure compliance with all usage restrictions and other applicable terms and conditions of this Use Terms by each Authorized User. Any breach or non-compliance of the terms and conditions of this Use Terms by any Authorized User shall be deemed to be a breach or non compliance by Customer. Customer will indemnify and defend the TCS in respect of any breach of this Use Terms to the extent that such breach arises from any act (or failure to act) by the Authorized Users. (ii) The usage rights granted herein and the provisions of this Use Terms do not grant or convey to Customer any ownership rights and interest or title in or to the TCS Application System any Intellectual Property Rights therein nor do they permit Customer to make derivative works or to make copies of the TCS Application System. To the extent that TCS Application System consists of any software codes, such material, when delivered to Customer pursuant to this Use Terms, shall be delivered by TCS in Object Code form only and Customer shall not have any right or license with respect to the Source Code or data base design of the TCS Application System.

2.2 Proprietary and Confidentiality Markings or Notices. Customer shall retain all of TCS's and/or its licensors' Logo, Trademark, Copyright notice and other proprietary markings or notice on the TCS Application System. Customer shall not, permit any Authorized Users or other persons to, remove, alter or otherwise render illegible any of TCS's Logo, Trademark, Copyright notice or other proprietary or confidentiality markings that may be placed on the TCS Application System or components thereof provided to Customer hereunder. Customer shall not remove or alter TCS's and/or its licensors' Logo, Trademark, Copyright notice and other proprietary markings or notice on all copies of the TCS Application System or any part thereof including the documentation.

2.3 Restrictions on Copying. Copying of the TCS Application System is prohibited except with TCS's prior written consent and authorization. Neither Customer nor any Authorized User is authorized to sell, license, sublicense, distribute, assign, transfer or distribute or timeshare the TCS Application System or otherwise grant any right under this Use Terms to any third party (other than Authorised Users). Any attempted sale, licensing, sublicensing, distribution, marketing, assignment or time sharing including by interactive cable or remote processing services or otherwise shall be null and void. Customer is not entitled to, and shall not make or permit others to, reverse engineer, disassemble, de-compile, recreate, enhance or modify the TCS Application System or any part thereof or to create enhancements to or derivative works of the TCS Application System or any portions thereof.

2.4 Trademarks. Customer will have no rights in any trademarks or service marks or trade names adopted by the TCS and/or its licensors for the TCS Application System or any part thereof.

2.5 Breach. Should the TCS Application System be Used beyond the Use rights by Authorized Users as set out in this Section 2, TCS shall notify Customer in writing requiring Customer to cure the breach of Use Terms and if Customer does not cure such breach within 10 days (or such other period that the TCS may permit upon Customer's request), of receipt of written notice from TCS then TCS shall be entitled to terminate the Use rights granted hereunder in respect of such TCS Application System, without prejudice to any other rights or remedies TCS may have under this Use Terms or otherwise.

3. OWNERSHIP AND PROPRIETARY RIGHTS

Customer acknowledges and agrees that TCS does and will continue to own all Intellectual Properties and Intellectual Property Rights in or attached to the TCS Application System, including without limitation, in or attached to any enhancement and upgrades and any derivative works thereof even if made for, by or on behalf of Customer. Nothing contained herein shall be construed as a transfer, assignment or conveyance by TCS to Customer of the ownership or title to the Intellectual Property or Intellectual Property Rights in or attached to the TCS Application System or any enhancements, upgrades or derivative works thereof.

4. MISCELLANEOUS

In the event of any conflict between the provisions of this Use Terms and those in the Agreement for Services or the Agreement notwithstanding any contrary provision anywhere else, Customer and TCS specifically agree and acknowledge that the provision of this Use Terms will prevail with respect to the TCS Application System.

RNB Global University

By: _Kishan kumar Bajaj_

Name: _Kishan Kumar Bajaj_

Title: _Vice Chairperson_

Tata Consultancy Services Limited

By: _____

Name: _____ Venguswamy Ramaswamy

Title: _____ Global Head - Small and Medium Business

SCHEDULE 5

CHANGE CONTROL PROCEDURE

Either Party may request a change in the scope of Services or deliverables but no such change shall be effective and binding unless such changes are documented in a change control document in the format described in Annexure A below ("Change Control Document") and signed by both parties.

If Customer desires to propose a change in Scope of Services, Customer shall deliver to TCS a change request in writing, describing the changes proposed. Promptly following TCS' receipt of Customer's change request, TCS shall submit a written change order proposal to Customer. If TCS desires to propose any change, TCS shall submit to the Customer a written description of the change in the form of a proposed change order for Customer's review and approval. Any change order document prepared by the parties shall include, among other items, an estimate of additional charges to Customer, if applicable, for the modified Services, any additional software or other material required to implement the change and any expected impact on the time schedule or service levels under the Schedule 2.

On Customer's written approval of the change order document submitted by TCS the parties shall sign the Change Control Document whereupon the Scope of Services in Schedule 2 and any other relevant Schedule(s) shall be deemed to have been amended by the change order.

No change to any Scope of Services shall be binding on the Parties unless the Change Control Document has been signed by authorized representatives of each party.

Annexure A to Schedule 5

Change Request No. _____

Date Initiated: _____   Date Approved_____

Project:_____

Description of Change:

Following are the changes/additions agreed to:

    a)   Schedule 1

    b)   Schedule 2

    c)   Schedule 4

Approved with Changes

Tata Consultancy Services Limited

_____
Authorized Signatory

____
Date

Customer

Authorized Signatory

____
Date

(TCS Proprietary and Confidential)

- 13 -

Canon
Delighting you Always

SYSTECH PERIPHERALS
H.O. : FIRST 'C' ROAD, SARDARPURA, JODHPUR (RAJ.) 342003
PHONE : +91-291-2646235 FAX : +91-291-2618419
BO: 11-B, Madar Saheb Road, Kundan Nagar, AJMER - 305001

TAX INVOICE (TG)

Customer Name & Address :
RNB GLOBAL UNIVERSITY
GANGANAGAR ROAD BICHWAL KHAR
INDUSTRIAL AREA BIKANER
BIKANER

Place of Supply : Rajasthan   State Cd: 08

Contact Person & Phone :
MR PANKAJ JI
9252425211

Invoice No : TG/ 260	Date 29/03/2022
Ag. No : 423	Date 26/11/2015
Machine Desc : A3 MFD	
Model No. : iR2002N	
Machine Sr.No. : QXS13045	
Agreed Rate B/W : 0.40	0.00 L
Agreed Rate Col : 0.00	0.00 L
Payment Terms :	
Company GSTIN : 08AAQPG2862G1ZJ	PAN : AAQPG2862G
Party GSTIN :	PAN :

Location : RNB GLOBAL CITY GANGANAGAR ROAD BIKANER

Invoice Details	Date	(B/W) A4	A3	(CLR) A4	A3	Amount
1.Reading This Month	29/03/2022	233708	0	0	0	
2.Reading Last Month	04/01/2022	225660	0	0	0	
3.Free Copies		-3952	0	0	0	
4.Gross Copies		12000	0	0	0	
5.Less Spoilage		0	0	0	0	
6.Net Bill Copies		12000	0	0	0	
7.Rate/Copies		0.40	0.00	0.00	0.00	
8.Gross Amount		4800.00	0.00	0.00	0.00	4800.00

0.00
0.00

HSN Code : 8443

CGST 9% : 432.00
SGST 9% : 432.00
IGST 18% : 0.00

Taxable Amt   4.800.00
Tax @ 18.00 %   864.00
TOTAL INVOICE VALUE   5664.00

Rs. Five Thousand Six Hundreds Sixty-Four Only AND PAISA ONLY

1. Payment by A/c Payee Cheque/Draft Only. (Cheque Bounced Charges Rs. 500/-)
2. @ 24% pa interest, if payment is not made within 15 days from the date of invoice.
3. Nil warrnty on Consumables/Spares/Service.
4. TG Invoivce raised as per the TG Agreements.
5. Subject to Jodhpur Jurisdiction only.

Our Bank Details :
HDFC Bank A/c No : 01422020005908, IFSC Code : HDFC0000142

For Systech Peripherals

Customer Signature & Stamp   E. & O.E.   Authorised Signatory

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Delighting you Always

SYSTECH PERIPHERALS
H.O. : FIRST 'C' ROAD, SARDARPURA, JODHPUR (RAJ.) 342003
PHONE : +91-291-2646235 FAX : +91-291-2618419
BO: 11-B, Madar Saheb Road, Kundan Nagar, AJMER - 305001

TAX INVOICE (TG)

Customer Name & Address :		
RNB GLOBAL UNIVERSITY		
GANGANAGAR ROAD BICHWAL KHAR		
INDUSTRIAL AREA BIKANER		
BIKANER		

Place of Supply : Rajasthan   State Cd: 08

Contact Person & Phone :
MR PANKAJ JI
9252425211

Invoice No	: TG/ 261	Date	29/03/2022
Ag. No	: 408	Date	01/01/2022
Machine Desc	: A3 MFD		
Model No.	: iR2002N		
Machine Sr.No.	: QXS09417		
Agreed Rate B/W :	0.40	0.00 L	
Agreed Rate Col :	0.00	0.00 L	
Payment Terms	:		
Company GSTIN	: 08AAQPG2862G1ZJ	PAN : AAQPG2862G	
Party GSTIN :	:	PAN :	

Location :   GANGANAGR ROAD BICHWAL, KHAR INDUSTRIAL AREA BIKANER

Invoice Details	Date	(B/W) METER READINGS		(CLR)		Amount
		A4	A3	A4	A3	
1.Reading This Month	01/01/2022	166138	0	0	0	
2.Reading Last Month	25/07/2020	159534	0	0	0	
3.Free Copies		6604	0	0	0	
4.Gross Copies		0	0	0	0	
5.Less Spoilage		0	0	0	0	
6.Net Bill Copies		0	0	0	0	
7.Rate/Copies		0.40	0.00	0.00	0.00	
8.Gross Amount		0.00	0.00	0.00	0.00	0.00
						0.00
						0.00

HSN Code   : 8443

CGST 9% : 0.00
SGST 9% : 0.00
IGST 18% : 0.00

Taxable Amt   0.00

TOTAL INVOICE VALUE   0.00

Rs.   Only AND PAISA ONLY

1. Payment by A/c Payee Cheque/Draft Only. (Cheque Bounced Charges Rs. 500/-)
2. @ 24% pa interest, if payment is not made within 15 days from the date of invoice.
3. Nil warrnty on Consumables/Spares/Service.
4. TG Invoivce raised as per the TG Agreements.
5. Subject to Jodhpur Jurisdiction only.

Our Bank Details :
HDFC Bank A/c No : 01422020005908, IFSC Code : HDFC0000142

For Systech Peripherals

Customer Signature & Stamp   E. & O.E.   Authorised Signatory

Performa Invoice

B M Infotrade Private Limited Formerly B M TRADERS 53 A, Vishnupuri, Dalda Factory Road, Durgapura, Jaipur UDYAM-RJ-17-0010127 GSTIN/UIN: 08AAECB8518R1ZZ State Name : Rajasthan, Code : 08 CIN: U52190RJ2012PTC037624 E-Mail : beena@bmtraders.com	**Invoice No.** BM/080920211 — **Dated** 8-Sep-21

Consignee (Ship to)	
RNB Global University RNB Global City Ganganagar Road, Bikaner State Name : Rajasthan, Code : 08	

Invoice No. BM/080920211 | Dated 8-Sep-21
Delivery Note | Mode/Terms of Payment **100% Advance**
Reference No. & Date. | Other References
Buyer's Order No. | Dated **8-Sep-21**
Dispatch Doc No. | Delivery Note Date
Dispatched through | Destination
Terms of Delivery

Buyer (Bill to)
RNB Global University
RNB Global City
Ganganagar Road, Bikaner
State Name : Rajasthan, Code : 08

Sl No.	Description of Services	HSN/SAC	Quantity	Rate	per	Amount
1	**AMC Charges** ARUBA SUPPORT 01.08.2021 to 37.07.2022 HPE Ref Nbr 0077730523, SAID 106776485850	998713	1 nos.	83,012.00	nos.	83,012.00
	CGST Output					7,471.08
	SGST Output					7,471.08
	Total		**1 nos.**			**₹ 97,954.16**

E. & O.E

Amount Chargeable (in words)
Rupees Ninety Seven Thousand Nine Hundred Fifty Four and Sixteen paise Only

HSN/SAC	Taxable Value	Central Tax		State Tax		Total Tax Amount
		Rate	Amount	Rate	Amount	
998713	83,012.00	9%	7,471.08	9%	7,471.08	14,942.16
Total	83,012.00		7,471.08		7,471.08	14,942.16

Tax Amount (in words) : **Rupees Fourteen Thousand Nine Hundred Forty Two and Sixteen paise Only**

Company's PAN : AAECB8518R

Declaration
1. Please note that this sale is subject to warranty terms laid down by our principals and we take no responsibility for any kind of omissions or errors on their part. 2. Goods one sold will not be taken back or replaced. 3. Subject to Jaipur Jurisdiction.

Company's Bank Details
Bank Name : State Bank of India
A/c No. : 32377323083
Branch & IFS Code : Bajaj Nagar & SBIN0003227

for B M Infotrade Private Limited

Registrar
Authorised Signatory

This is a Computer Generated Invoice

---------- Forwarded message ---------
From: **Singh, Daljeet** <daljeet.singh@hpe.com>
Date: Wed, Jul 21, 2021 at 6:44 PM
Subject: RE: Required: Technical Support | RNB Global University, Bikaner
To: RNBGU / IT1 <it1@rnbglobal.edu.in>
Cc: technical@rnbglobal.edu.in <technical@rnbglobal.edu.in>

Hi Pankaj

Just to inform you that HP Switches were under life time warranty

Thanks

Daljeet