

## ELV LIST OF INVENTORY - MANDATORY &amp; RECOMMENDED SPARES FOR THE DEVELOPMENT OF PERMANENT CAMPUS OF NALANDA UNIVERSITY, RAJGIR

Sr. No.	WORKS DESCRIPTION (SITC = SUPPLY, INSTALLATION, COMMISSIONING & TESTING)	Unit of Measurement (UOM)	QTY_TOTAL	Qty of Mandatory Spares	Qty of Recommended Spares
	<b>1. TELEPHONE &amp; DATA NETWORKING - PASSIVE COMPONENTS, CABLING DISTRIBUTION, ACTIVE COMPONENTS &amp; VOICECOMM</b>				
	<b>F/UTP CAT6A COMPONENTS</b>				
1.1	Supply and laying of specified make F/UTP CAT6A cable in prelaidd PVC conduits or pipes or raceways or cable trays, but without the cost of conduits or pipes or raceways or cable trays. The cable is to be drawn from individual workstation area/device/IO to the nearest distribution rack or networking rack. It shall be within the scope of integrator/contractor to carry out and submit scanner readings for all IOs meeting the requirements of relevant EIA/TIA standards as per CAT6A cabling requirements. The integrator/contractor shall submit a detail IO maps, <u>labelling and documentation related to terminations.</u>	Rmtrs	180020		
1.2	SITC of F/UTP CAT6A angular patch panel pre-loaded with 24 ports in 1U form factor, with universal A/B labeling and 110 connector terminations on rear of panel allowing for quick and easy installation of 22 to 24 AWG cable, inclusive of termination of f/utp CAT6A cables at all 24 ports.	No.	386	20	
1.3	SITC of single F/UTP CAT6A I/O of specified make including mounting inside singlex or duplex or quad faceplate and MS backbox assembly as required as per drawing, inclusive of termination of F/UTP CAT6A cable at each IO at workstation area/device.	No.	5536	280	
1.4	SITC of singlex faceplate and corresponding MS backbox assembly for installation of 1 F/UTP CAT6A IOs	No.	2809		140
1.5	SITC of duplex faceplate and corresponding MS backbox assembly for installation of 2 F/UTP CAT6A IOs	No.	1365		70
1.6	SITC of quad faceplate and corresponding MS backbox assembly for installation of 4 F/UTP CAT6A IOs	No.	100		5
1.7	SITC of F/UTP CAT6A RJ-45/RJ-45 Patch Cords Solid Conductor of various lengths				
a	3ft - IO side	No.	5533	280	
b	7ft- Rack side	No.	5533	280	
c	10ft- as required	No.	100	5	
1.8	<b>PVC Conduits</b> Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
a	25 mm size.	Rmtrs	1000		
b	40 mm size.	Rmtrs	1000		
1.9	<b>FIBER OPTIC CABLE &amp; COMPONENTS</b> SITC and Laying of fiber optic cable of various capacities to be laid in prelaidd conduits/RCC hume pipes/HDPE/DWC/cable trays/trenches/in underground soil, as applicable, excluding the cost of soft-soil or hard-soil digging.				
a	12 cores, Singlemode, Outdoor, Armoured	Rmtrs	10125		
b	12 cores, Singlemode, Outdoor, Armoured (For Electrical HT side Scada Integration)	Rmtrs	25000		
c	12 cores, Singlemode, Outdoor, Armoured (FAS Panels Integration)	Rmtrs	7500		
d	24 cores, Singlemode, Outdoor, Armoured	Rmtrs	8400		
e	48 cores, Singlemode, Outdoor, Armoured	Rmtrs	12400		
f	12 cores, Singlemode, Indoor, Unarmoured	Rmtrs	1000		
1.10	SITC of wall mounted LIU of various capacities for optical splicing/termination of fiber optic cable as per the design schematics. It shall be complete with adaptor panels, adaptors and splice trays for using LC type termination and masking/blanking/dust cover for unused/unmounted adaptor ports, inclusive of all mechanical accessories. Adequate splice trays shall be provided for proper management of splices for required number of cores at every LIU.				
a	for 12 cores, Singlemode LC termination	No.	10	1	
b	for 24 cores, Singlemode LC termination	No.	10	1	
c	for 48 cores, Singlemode LC termination	No.	10	1	

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1.11	SITC of 19" rack mounting type fiber shelf of various capacities for assembly/termination of fiber optic cable for LC style components, for optical splicing and provision for storage of pigtails and splices, equipped with adaptors, adaptor plates and any other such all necessary hardware for proper dressing and management of fiber optic cable. Any blank adaptor positions must be suitably masked for restricting dust entry. Adequate splice trays shall be provided for proper management of splices for required number of cores at every LIU.				
a	for 12 cores, Singlemode LC termination	No.	210	20	
b	for 24 cores, Singlemode LC termination	No.	5	1	
c	for 48 cores, Singlemode LC termination	No.	7	1	
1.12	SITC of LC-LC duplex fiber optic patch cords of various lengths				
a	1 mtr/3 ft., singlemode	No.	448	25	
b	2 mtr/6 ft., singlemode	No.	5	1	
c	3 mtr/10ft., singlemode	No.	5	1	
1.13	SITC of LC type pre-terminated fiber optic cable pigtails of various lengths				
a	1 mtr/3 ft., singlemode	No.	878	45	
b	2 mtr/6 ft., singlemode	No.	5	1	
c	3 mtr/10ft., singlemode	No.	5	1	
1.14	Splicing / Termination of Fiber Optic Fiber Cable Cores using Fusion splicing with pre-terminated LC pigtails, dressing and proper fixing in splice trays.	Job Work	3374		
1.15	SITC of IP66 rated External Splicing Kit for 96 cores inclusive of splicing of cores.	No.	20	2	
1.15a	Supply and Installations of OFC markers along the path of Fiber Distribution path for Identification of Fiber cable	No.	100		
1.16	<b>NETWORKING ENCLOSURES</b> SITC of 19" wide mounting frame Networking Enclosures of various sizes and capacities complete with all accessories.				
a	6U, 600mmW x 450mmD, wall mounted, 2 x 90cfm fans	No.	49		
b	9U, 600mmW x 450mmD, wall mounted, 2 x 90cfm fans	No.	19		
c	12U, 600mmW x 600mmD, wall mounted, 2 x 90cfm fans	No.	72		
d	15U, 600mmW x 600mmD, wall mounted, 2 x 90cfm fans	No.	14		
e	22U, 800mmW x 800mmD, floor mounted, 4 x 90cfm fans	No.	3		
f	36U, 800mmW x 800mmD, floor mounted, 4 x 90cfm fans	No.	2		
g	42U, 800mmW x 1000mmD, floor mounted, 4 x 90cfm fans	No.	14		
h	42U, 1000mmW x 1000mmD, floor mounted, 4 x 90cfm fans	No.	1		
1.17	<b>ACTIVE: NETWORKING SWITCHES AND OPTIONS</b> <b>TYPE-1 (ACCESS SWITCH)</b> SITC of Layer 2 manageable networking switch, 8 # 10/100/1000Tx ports, all ports capable of providing PoE+ as per 802.3at, switch having a PoE power budget of minimum 350 Watts, minimum 2 dedicated SFP ports.	No.	68	2	
1.18	<b>TYPE-2 (ACCESS SWITCH)</b> SITC of Layer 2 manageable networking switch, 24 # 10/100/1000Tx ports, stacking, all ports capable of providing PoE+ as per 802.3at, switch having a PoE power budget of minimum 350 Watts, minimum 4 dedicated or shared SFP ports.	No.	318	9	
1.19	<b>TYPE-3 (DISTRIBUTION SWITCH)</b> SITC of Layer 3 fiber aggregation networking switch, minimum 24 # SFP ports, plus minimum 4 # SFP+ ports, 1 AC power supply built in and inclusive of at least 1 redundant power supply and redundant fans.	No.	10	1	
1.20	<b>TYPE-4 (CORE SWITCH)</b> Supply, Installation, Testing and Commissioning of Core Switch, minimum 24 # SFP+ ports inclusive of and installed with the following features:  redundant power supply, redundant fans, full advanced Layer 3 features, switch virtualization and high availability.	No.	2	Engine/CPU/Controller - 1 No.; Power Supply - 1 No.; Fan - 1 No.	
1.21	SITC of 1000 Base LX singlemode transceivers for L2/L3 switch, duplex LC termination supporting distance upto 2000 mtrs for ACCESS SWITCHES.	No.	440	10	

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1.22	SITC of 1000 Base LX singlemode transceivers for L2/L3 switch, duplex LC termination supporting distance upto 2000 mtrs for DISTRIBUTION SWITCHES.	No.	64		
1.23	SITC of 10G SFP+ LR singlemode transceivers, 1310nm, duplex LC termination supporting distance upto 2000 mtrs, inclusive of any hardware or interfaces such as modules for populating SM-LC transceivers for DISTRIBUTION SWITCHES.	No.	40	4	
1.24	SITC of 10G SFP+ ER singlemode transceivers, 1550nm, duplex LC termination supporting distance upto 10000 mtrs, inclusive of any hardware or interfaces such as modules for populating SM-LC transceivers for DISTRIBUTION SWITCHES.	No.	32	2	
1.25	SITC of 10G SFP+ LR singlemode transceivers, 1310nm, duplex LC termination supporting distance upto 2000 mtrs, inclusive of any hardware or interfaces such as modules for populating SM-LC transceivers for CORE SWITCHES.	No.	32		
1.26	SITC of wireless controller capable of supporting min. 1000 access points, inclusive of licence costs for 1000 Access Points. Centralized Hardware Controller based architecture. The system shall operate in High Availability (HA) mode providing redundancy for controller hardware.	No.	2		
1.27	SITC of Wireless Access Point supporting Dual band with 802.11ac (5 GHz) and 802.11g/n (2.4GHz) concurrent operation, 4 x 4:3 MIMO Wave2 from Day 1, One 10/100/1000 Base-Tx auto-sensing (RJ45) PoE port. The AP shall be wall mountable as well as ceiling mountable (provide both options).	No.	957	20	
1.28	SITC of licences for supporting every additional 100 wi-fi APs (in slab of 100 Nos.)	No.	1		
1.29	SITC of Management Tool for Centralised Configuration, Administration, Fault and Performance Monitoring and Virtualisation Management for wired and wireless LAN infrastructure. (NMS)	Set	1		
<b>Sub-Total OF 1</b>					
<b><u>2. VIDEO SURVEILLANCE / CCTV SYSTEM</u></b>					
2.1	SITC of Full High Definition Network Cameras, outdoor PTZ, 1/3" CMOS/MOS/CCD sensor with 30x optical zoom or better, minimum resolution 2MP (1920X1080) or better, high speed dome, 360 degrees full rotation, complete with IK10 rated vandal resistant and IP66 rated weatherproof housing, PoE+ as per 802.3a/f/t or including an optional AC/DC supply if required, supporting True Day/Night operation, ONVIF Profile S compliant, supporting H.264 High Profile with dehumidification feature.	No.	14	1	
2.2	SITC of Full High Definition Network Cameras, indoor PTZ, 1/3" CMOS/MOS/CCD sensor with 30x optical zoom or better, minimum resolution 2MP (1920X1080) or better, high speed dome, 360 degrees full rotation, complete with IK10 rated vandal resistant housing, PoE+ as per 802.3a/f/t or including an optional AC/DC supply if required, supporting True Day/Night operation, ONVIF Profile S compliant, supporting H.264 High Profile with dehumidification feature.	No.	10	1	

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2.3	SITC of Full High Definition Network Cameras, Fixed Dome, 1/3" CMOS/MOS/CCD sensor, 3-8 mm lens, minimum resolution 2MP (1920X1080), 1080p resolution at frame rates 30fps or better, H.264 High Profile, JPEG support, True Day/Night operation, ONVIF Profile S compliant, complete with IK10 rated vandal resistant housing and Power on Ethernet (PoE) based on 802.3a/f.	No.	167	10	
2.4	SITC of Full High Definition Network Cameras, Fixed Dome, 1/3" CMOS/MOS/CCD sensor, 5-50 mm lens, minimum resolution 2MP (1920X1080), 1080p resolution at frame rates 30fps or better, H.264 High Profile, JPEG support, True Day/Night operation, ONVIF Profile S compliant, complete with IK10 rated vandal resistant housing and Power on Ethernet (PoE) based on 802.3a/f.	No.	556	10	
2.5	SITC of Full High Definition Network Cameras, Outdoor CS-Mount type, 1/3" CMOS/MOS/CCD sensor, 5-50mm varifocal lens, minimum resolution 2MP (1920x1080), 1080p resolution at frame rates 30fps or better, H.264 High profile, JPEG support, Day/Night operation, ONVIF Profile S compliant, complete with IK10 rated vandal resistant and IP66 rated outdoor housing and Power on Ethernet (PoE) based on 802.3a/f.	No.	16		
2.6	SITC of Full High Definition Network Cameras, indoor CS-Mount type, 1/3" CMOS/MOS/CCD sensor, 5-50mm varifocal lens, minimum resolution 2MP (1920x1080), 1080p resolution at frame rates 30fps or better, H.264 High profile, JPEG support, Day/Night operation, ONVIF Profile S compliant, complete with IK10 rated vandal resistant housing and Power on Ethernet (PoE) based on 802.3a/f.	No.	74	4	
2.70	SITC of Video Management Software with ONVIF Profile S compliance having licenses for 1000 cameras and scalable to additional 50% cameras in future by adding appropriate licenses, inclusive of 10 client licences.	No.	1		
2.8	SITC of Server(s) required for the VMS - Industry standard Intel Xeon Dual Processor, both pocessors installed, 16 GB RAM, 1 x 1TB GB SATA HDD for OS and VMS applications, 2 x GIG NIC, DVD ROM Drive, Appropriate Licensed Operating Systems.	Set	1		
2.90	SITC of Recording Server(s) - Industry standard Intel Xeon Dual Processor, both pocessors installed, 16 GB RAM, 1 x 1TB GB SATA HDD for OS and VMS applications, 2 x GIG NIC, DVD ROM Drive, Appropriate Licensed Operating Systems. Vendor shall provide required no. of servers for supporting the total no. of cameras as above, however not exceeding 64 cameras per server (1 no. of spare server shall be provided in addition to the required qty. of servers). Set of servers shall be supplied with 16-port KVM switch, USB/Wireless Keyboard, USB/Wireless Mouse, 1 x 21" LED Monitor.	Set	1		1 No.
2.10	SITC of Network Storage required with a capacity to store the content for 1000 cameras for 24Hrs x 30days at 25fps and 1080p. It should be scalable (should have sufficient expansion bays for HDDs) for at least additional 50% cameras. Vendor shall submit bandwidth and storage calculator for the proposed camera models.	No.	1		
2.11	SITC of Client with Intel Core i7 870 or higher with 8 GB of RAM DDR3, 1 TB SATA II hard drive for OS and VMS applications, 1 GB PCI-Express x16 dual-head video adapter supporting DVi or HDMI outputs, 1600 x 1200 or higher screen resolution, 100/1000 Ethernet Network Interface Card and 16x DVD+/- RW Drive along with appropriate Operating System, inclusive of minimum 32" LED display compatible with supplied video adaptor.	No.	5	1	
2.12	SITC of narrow bezel Professional Display/Monitors min. 55" diagonal HD LED display, min. 1 x HDMI/DVi, 2 x HDMI, USB, these shall be supplied with all hardware and mechanical work/assembly required for panelling and video wall matrix type mounting configuration as per site requirements.	No.	5	1	
2.13	SITC of A3 sized laser color printer with required accessories and hardware as required.	No.	2		
2.14	<b>FIBER COMPONENTS FOR OUTDOOR CCTV</b> SITC and Laying of outdoor 12 core armoured single mode fiber optic cable for outdoor connectivity where ever required in prelaidd conduits / RCC hume pipes/HDPE/DWC, whichever maybe available.	Rmtrs	10000		
2.15	SITC of 12 Port outdoor LIUs for fiber terminations.	No.	12	1	
2.16	SITC of LC-LC single mode duplex fiber optic patch cord 1mtr as per tender specification.	No.	12	1	
2.17	SITC of LC type single mode pre-terminated duplex pigtail 1mtr as per tender specification.	No.	12	1	
2.18	Suppy and Installations of OFC markers along the path of Fiber Distribution path for Identification of Fiber cable	No.	50	3	
2.19	Splicing / Termination of Fiber Optic Fiber Cable Cores using Fusion splicing with pre-terminated LC pigtails, dressing and proper fixing into splice trays.	Job Work	96		
2.20	SITC of 5 port Industrial PoE+ Switch with 2 ports populated with mini GBIC SM SFP ports & 3 nos. 1000MbpsTx ports, inclusive of external DC adaptor/power supply as per OEM requirements.	No.	12	1	
2.21	SITC of F/UTP CAT6A Patch Cord 7ft	No.	12	1	
2.22	SITC of DC power Supply 24 VDC	No.	12	1	

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2.23	SITC of 10'-15' MS/GI street pole with accessories for mounting of cameras.	No.	12	1	
2.24	SITC of ruggedized, IP66 rated outdoor pole mountable enclosure for housing power supplies, fiber LIUs, and industrial networking switch, with suitable provisions for DIN rails, cable management.	No.	12	1	

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<b>Sub-Total OF 2</b>					
3.1	<p><b><u>3. FIRE DETECTION &amp; ALARM SYSTEM</u></b></p> <p>SITC of Microprocessor based Intelligent networkable addressable type fire alarm control panel with display. The panel should be equipped with 1 installed loops, each loop having a capacity of connecting a minimum of 127 addressable detectors and 127 addressable modules or a mix of up to 250 detectors and devices in any combination in any single loop with max. 80% of loading in a single loop, the panel shall be modularly expandable up to minimum 10 loops using loop expansion interface cards, with each loop having a capacity of connecting a minimum of 127 addressable detectors and 127 addressable modules or a mix of up to 250 detectors and devices in any combination in any single loop with max. 80% of loading in a single loop, operating at 240 volts AC power supply, and equipped with automatic battery charger, 24 volts Sealed Maintenance Free (SMF) Lead acid Batteries shall be provided with backup of for 24 hours under Normal working condition &amp; 30 minutes under emergency condition. wiring structure of FACP shall be Class A type (NFPA style 6). The panel shall be supplied with all accessories, control modules and power supply modules in the required quantities as per site requirements for all types of field devices to make the system fully operational.</p> <p>The panel shall be UL 9th or Latest edition Listed and FM approved.</p> <p>Each panel shall be provided with Singlemode fiber optics based hardware interface(s) and software for interconnecting of multiple panels for a peer-to-peer network.</p> <p>All fire alarm panels at site shall be operated and monitored in networked mode and shall be integrated with IBMS system over BacNet/IP protocol; all necessary hardware and software applications and licences for the same shall be provided by the vendor.</p>	No.	15		Power Supplies, Controller, Loop Card - 1 each
3.2	<p>SITC of Microprocessor based Intelligent networkable addressable type fire alarm control panel with display. The panel should be equipped with 2 installed loops, each loop having a capacity of connecting a minimum of 127 addressable detectors and 127 addressable modules or a mix of up to 250 detectors and devices in any combination in any single loop with max. 80% of loading in a single loop, the panel shall be modularly expandable up to minimum 10 loops using loop expansion interface cards, with each loop having a capacity of connecting a minimum of 127 addressable detectors and 127 addressable modules or a mix of up to 250 detectors and devices in any combination in any single loop with max. 80% of loading in a single loop, operating at 240 volts AC power supply, and equipped with automatic battery charger, 24 volts Sealed Maintenance Free (SMF) Lead acid Batteries shall be provided with backup of for 24 hours under Normal working condition &amp; 30 minutes under emergency condition. wiring structure of FACP shall be Class A type (NFPA style 6). The panel shall be supplied with all accessories, control modules and power supply modules in the required quantities as per site requirements for all types of field devices to make the system fully operational.</p> <p>The panel shall be UL 9th or Latest edition Listed and FM approved.</p> <p>Each panel shall be provided with Singlemode fiber optics based hardware interface(s) and software for interconnecting of multiple panels for a peer-to-peer network.</p> <p>All fire alarm panels at site shall be operated and monitored in networked mode and shall be integrated with IBMS system over BacNet/IP protocol; all necessary hardware and software applications and licences for the same shall be provided by the vendor.</p>	No.	4		Power Supplies, Controller, Loop Card - 1 each

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3.3	<p>SITC of Microprocessor based Intelligent networkable addressable type fire alarm control panel with display. The panel should be equipped with 3 installed loops, each loop having a capacity of connecting a minimum of 127 addressable detectors and 127 addressable modules or a mix of up to 250 detectors and devices in any combination in any single loop with max. 80% of loading in a single loop, the panel shall be modularly expandable up to minimum 10 loops using loop expansion interface cards, with each loop having a capacity of connecting a minimum of 127 addressable detectors and 127 addressable modules or a mix of up to 250 detectors and devices in any combination in any single loop with max. 80% of loading in a single loop, operating at 240 volts AC power supply, and equipped with automatic battery charger, 24 volts Sealed Maintenance Free (SMF) Lead acid Batteries shall be provided with backup of for 24 hours under Normal working condition &amp; 30 minutes under emergency condition. wiring structure of FACP shall be Class A type (NFPA style 6). The panel shall be supplied with all accessories, control modules and power supply modules in the required quantities as per site requirements for all types of field devices to make the system fully operational.</p> <p>The panel shall be UL 9th or Latest edition Listed and FM approved.</p> <p>Each panel shall be provided with Singlemode fiber optics based hardware interface(s) and software for interconnecting of multiple panels for a peer-to-peer network.</p> <p>All fire alarm panels at site shall be operated and monitored in networked mode and shall be integrated with IBMS system over BacNet/IP protocol; all necessary hardware and software applications and licences for the same shall be provided by the vendor.</p>	No.	2		Power Supplies, Controller, Loop Card - 1 each
3.4	SITC of interface for interconnecting multiple fire alarm system panels over fiber optics media based communication, transceivers or optics must support 100Mbps as per technical specification etc. as required.	No.	21	2	
3.5	SITC of BacNet interface for IBMS integration using Ethernet TCP/IP as per technical specification etc. as required.	No.	1		
3.6	<p>SITC of Fire Command workstation including Graphical User Interface based software.</p> <p>This shall include any cards, modules, hardware interfaces based on TCP/IP Ethernet communications protocol over fiber optics based media and softwares for providing connectivity and communication between multiple fire alarm system panels.</p> <p>The GUI based main network software shall be capable of graphically representing each node being monitored with floor plans and icons depicting the actual locations of the various systems; and / or sensors' locations. The GUI software shall be located in control room and shall monitor all the blocks panel connected with each other. Graphic software will interface with fire network via network interface card and shall be able to control and monitor voice evacuation and two way communication system.</p> <p>It shall be inclusive of necessary server grade hardware, min. 42" professional LED display, licenced server operating system, licenced OEM application.</p>	No.	1		
3.6(a)	SITC of A3 sized laser color printer with required accessories and hardware as required.	No.	1		
3.7	SITC of Repeater Panel with 6 inch or 640-characters display. The LCD shall display all events / detectors, devices status of complete systems in the network as per technical specification etc. as required.	No.	2		

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3.8	SITC of loop expansion interface card for providing additional capacity of 1 loop, as per technical specification etc. as required.	No.	1		
3.9	SITC of Addressable Multi-sensor detectors (heat+smoke) for below false ceiling & True ceiling(above false ceiling) with mounting base, LED, Address Switch, inclusive of detector base and complete with all accessories as required. The detector shall be UL/FM Listed/approved. The detector shall include mounting arrangements for direct installation on ceiling/slab as per technical specification etc. as required.	No.	87	5	
3.10	SITC of Addressable Photoelectric/Smoke Detector with mounting base, LED, Address Switch, inclusive of detector base and complete with all accessories as required. The detector shall be UL/FM Listed/approved. The detector shall include mounting arrangements for direct installation on ceiling/slab as per technical specification etc. as required.	No.	1212	60	
3.11	SITC Rate of Rise Cum Fixed Temperature detector with mounting base, LED, Address Switch to program the detectors and complete with all accessories as required. The detector shall be UL/FM Listed/approved. The detector shall include mounting arrangements for direct installation on ceiling/slab as per technical specification etc. as required.	No.	101	5	
3.12	SITC of Beam Detector (Tx-Rx pair) along with reflector plate including mounting base as per technical specification etc. as required.	No.	61	3	
3.13	SITC of UL/FM Listed/approved 2 way communication Fire Fighter's Telephone Jack inclusive of any required telephone modules or monitor modules or as per OEM	No.	82	5	
3.14	SITC of UL/FM/ Listed/approved 2 way communication Fire Fighter's Handset	No.	27	2	
3.15	SITC of Addressable Pull type Manual Call Point with Key reset as per technical specifications with all the necessary mounting accessories as required to complete installation.	No.	135	7	
3.16	SITC of Addressable Relay module as per technical specification etc. as required.	No.	159	8	
3.17	SITC of Addressable monitor module as per technical specification etc. as required.	No.	87	5	
3.18	SITC of Addressable Control module as per technical specification etc. as required.	No.	137	7	
3.19	SITC of Addressable type isolator modules for isolating shorted, dewired and loose circuits between two successive fault isolators with automatic resetting arrangement as per technical specification etc. as required.	No.	110	6	
3.20	SITC of Sounder with Strobe device as per NFPA72 edition. The unit shall be configureable simultaneously for both sounder and strobe function. The strobes shall be capable of being synchronized for better evacuation as per technical specification etc. as required.	No.	137	7	
3.21	Sitc of Directional Sounders with 20 hz to 20 khz operating frequency with multiple 8 distinct sound patterns to indicate corridors, Exit doors and direct Occupants for fast & safe Evacuation as specified in NFPA 72 - 2010 edition.	No.	72	4	
3.22	SITC of Response Indicator with matching screws complete with GI Junction box, cable lugs at cable end and ferruling and any other hardware as appropriate.	No.	13	1	
3.23	Supplying and drawing 3 x 1.5 sq. mm size of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.	Rmtrs	18400		
3.24	Supply & laying of FRLS type armoured cable of 3 Core x 1.5 sq.mm, Copper (Cu) conductor, Shielded Twisted pair, XLPE insulated wire, confirming to IS standards and as per technical specifications with all the necessary accessories as required to complete laying/installation for Fire alarm System.	Rmtrs	3200		
<b>Sub-Total OF 3</b>					
<b>4. ACCESS CONTROL AND TIME ATTENDANCE SYSTEM</b>					
4.1	SITC of ACS client hardware/workstation - industry standard Intel based platform, minimum i7 processor, 2GB RAM, 1TB SATA HDD, dedicated AGP graphics with 1G RAM, DVD, USB ports, min. 19" LED display supporting 1360x768 minimum resolution, rack mountable, licensed Microsoft Operating System Windows 10 or above and requisite user licenses.	No.	1		
4.2	SITC of Centralised Web based Application Software for Configuration, Management & Diagnostics of Access Control Configuration & Time Attendance Management.	No.	1		
4.3	SITC of microcontroller/microprocessor based Door Controller plus Reader for Access Control with all interfaces for computer/server connectivity for card base access control.	No.	12	1	
4.4	SITC of microcontroller/microprocessor based Controller plus Reader for Time attendance function with all interfaces for computer/server connectivity for biometric base time attendance system.	No.	50	1	



**ELV LIST OF INVENTORY - MANDATORY & RECOMMENDED SPARES FOR THE DEVELOPMENT OF PERMANENT CAMPUS OF NALANDA UNIVERSITY, RAJGIR**

Sr. No.	WORKS DESCRIPTION (SITC = SUPPLY, INSTALLATION, COMMISSIONING & TESTING)	Unit of Measurement (UOM)	QTY_TOTAL	Qty of Mandatory Spares	Qty of Recommended Spares
4.5	Supply, Installation , Testing & Commissioning of Contactless smart Card based on technology MIFARE® , DESFire EV1, MIFARE® Classic.	No.	65		
4.6	SITC of Green ABS plastic Emergency Break Glass Units. Current Rating : 12/24VDC, 10A48VDC, 3Amps typical. Various colour options shall be available.	No.	12	1	
4.7	SITC of Electromagnetic Lock (fail safe type) of 600lbs holding force, dual voltage selectable (12 VDC or 24 VDC), UL listed, Green/Red LED indication for EM Lock Status, with feedback contact. Shall be complete with L/Z/U Brackets as required for mounting on Glass / Wooden frame / Metallic Doors.	No.	12	1	
4.8	Supply, Installation , Testing & Commissioning and laying of 6 Core X0.5Sqmm Multistrand Copper Cable	Rmtrs	700		
4.9	Supply, Installation , Testing & Commissioning and laying of 4 Core X0.5Sqmm Multistrand Copper Cable	Rmtrs	700		
4.11	<b>F/UTP CAT6A COMPONENTS</b> Supply and laying of specified make F/UTP CAT6A cable in prelaidd PVC conduits or pipes or raceways or cable trays, but without the cost of conduits or pipes or raceways or cable trays. The cable is to be drawn from individual workstation area/device/IO to the nearest distribution rack or networking rack. It shall be within the scope of integrator/contractor to carry out and submit scanner readings for all IOs meeting the requirements of relevant EIA/TIA standards as per CAT6A cabling requirements. The integrator/contractor shall submit a detail IO maps, labelling and documentation related to terminations.	Rmtrs	2300		
4.12	SITC of F/UTP CAT6A RJ-45/RJ-45 Patch Cords Solid Conductor of various lengths				
a	3ft	No.	62		
b	7ft	No.	62		
<b>Sub-Total OF 4</b>					