S.No.	Name of the equipment	Specification of the equipment	Cost of the Equipment	Utilization	Year of Procurement	Department
Institution-wise and department-wise list of equipment (more than Rs. 25 lakh)					
1	Joel High Resolution Transmission Electron Microscope (TEM)	200kV Transmission Electron Microscope (W/LaB6 filament). Analytical TEM for observation (Model JEOL JEM 2100 with high resolution pole piece. From 80 – 200 kV (variable)	Rs.1,92,00,883.26(DST FIST) Rs.81,95,072.24 (APF)	M.Tech., Ph.D. & Funded Research	2011-12	Metallurgical & Materials Engg.
2	Bottom Mount Camera (TEM)	ORIUS 830 SC200 CCD Camera (compatible to JEOL JEM 2100 TEM) 2,000x2,000 pixels with atleat 30 frames persecond.	40,62,813 (APF)	M.Tech., Ph.D. & Funded Research	2011-12	Metallurgical & Materials Engg.
3	Dage 4000 Plus Bond Tester & Image Capture System	Pull test upto 100 Kg XY stages with higher speed & zone shear options with intelligent paragon software	Rs.45,61,637 (DRDO/KNP)	M.Tech., Ph.D. & Funded Research	2012-13	Metallurgical & Materials Engg.
4	EDS System for Jeol TEM	OXFORD INCA TEM 250 EDS System. Resolution: 140eV or better at MnKa	Rs.44,79,916.74 (APF/DST)	M.Tech., Ph.D. & Funded Research	2012-13	Metallurgical & Materials Engg.
5	Magnetic Sputtering PVD Unit	Two source thermal & electron beam evaporation. 3 source magnetic sputtering PVD unit	Rs.33,40,883 (TEQIP – II)	M.Tech., Ph.D. & Funded Research	2013-14	Metallurgical & Materials Engg.

6	Low Temperature Ion Milling System with Accessories for TEM	LN2 cooled Ion Milling System for standard 3mm sample for TEM analysis, Dual beam modulation, widefieldstereo microscope, loading stage with multiple tweezers. TEM sample preparation through cross sectional route. Capable of working from 100eV to 6000eV.	Rs.88,68,099.16 (APF)	M.Tech., Ph.D. & Funded Research	2013-14	Metallurgical & Materials Engg.
7	Tensile Tester with Accessories	Dual Column floor type high precision, constant rate strain control universal testing machine, 100kn – 100N range, Test Speed Range: 0.0005 to 1000mm/min free step less setting or better, load capacity across entire crosshead speed range or better	Rs.38,17,163 (APF)	M.Tech., Ph.D. & Funded Research	2013-14	Metallurgical & Materials Engg.
8	DAQ Systems	Different DAQ system under MOU with National Instruments	USD 1,06,580	Fully utilised by PhD, M Tech students and B tech project students, ME 825, ME826, ME827 + AM 477 are offered using these facility	2013	Centre for system design

9	Long Stroke Shaker	Force: 900N, Velocity 1000mm/s, stroke 150 mm, Frequency range DC to 200Hz	Euro 28,394.00	Fully utilised by PhD, M Tech students and B tech project students, , ME826, ME 351 are offered using these facility	2013	Centre for system design(Vlab)
10	Control system Expo unit	Active suspension system, 2 DOF Helicopter model Compact RIO, PXI	USD 1,01,839.35	Fully utilised by PhD, M Tech students and B tech project students, ME 825, ME826, ME827 + AM 477 are offered using these facility	2013	Centre for system design(Vlab)
11	Dell Optiplex 9010 Systems Hardware with Operating System	Desktop Systems , Core i7, with key,board, mouse monitor and hard disk	5405079	Installed in the CCC LAN	2013	CCC
12	Ground Penetration Radar	· GPR Controller AKULA 900C · 12.5 – 100MHz, 400MHz, 1000MHz antennas · 500MHz borehole antenna · 4 wheels survey cart · GPR Soft Pro with dongle	Rs. 76,39,048/-(Incl. Taxes)	Students project works, research work	2014	Mining Engineering

13	IBM Blade Servers Hardware	Xeon E5-2630v2 , 2.6GHz, 16 GB, 600GB 10K SAS , Blade Enclosure, Tandberg Data Cartridge, Academic VMWare E-LIC	4403383 + 156618 + 1574721	Installed in the Data Centre for Virtual services	2014	CCC
14	Wire Electro Discharge Machining Unit (WEDM)	**Wire electrode diameter** : 150, 200, 250 μm. Wire type : Zn coated brass wire, Pure brass wire.Dielectric fluid : De-ionized water only	32.21 Lakhs	60:40:00	2014	Mechanical Engineering
15	Universal Testing Machine (UTM)	**Max capacity** : 50 KN Testing capabilities : Tensile, compression, 3-point bending tests.	36.24 Lakhs	50:50:00	2014	Mechanical Engineering
16	Photoluminescence Spectrometer (Horiba Fluoromax -4CP) with Time Correlated Single Photon Counting	Min 150W ozone free Xe lamp and associated power supply, flash lamp for TCSPC (milli and micro second measurements). LEDs/diode laser for TCSPC measurements (for nano and pico second measurements). (350 nm, 250 nm) Monocromators: Accuracy : 0.5nm, Speed : 150nm/s Range: 0–1300 nm mechanical range Gratings : 330 nm blaze for excitation (200–700 nm range); 500 nm	Rs. 61,00,485	**Internal**: PG and PhD students of Physics, Chemistry, Chemical Engineering, Metallurgical & Materials Engineering departments of the institute are major users. External:MITManipal, Mangalore University, Yenepoya University, KMC Manipal.	2014	Physics Department

		blaze for emission (300–1000 nm range); Bandpass Set automatically (0–30nm single-grating) Imaging spectrometer option for multi-channel acquisition or multi port applications. Resolution: at least 0.04 Czerny Turner design spectrometer operated under computer control, photon counting electronics, and controlling software. Photodiode for excitation correction from 240–1000nm. Emission detector: photomultiplier tube for high sensitivity in photon counting mode 4mL, 1 cm X 1 cm Quartz Cuvette Open top with cap. Solid sample Holder for thin films and powder samples Windows and Linux based software Life time range of 200 ps to 1 sec for TCSPC measurements. Signal/Noise ratio: Liquid nitrogen Dewar for low temperature measurements. better than				

		3000:1 Set of filters to filter the noises.				
17	RigakuMiniflex 600 Tabletop X-ray Diffractometer	Power (Max.) 600W, Tube Voltage 40 kV, Tube Current 15 mA, Rotary Shutter linked to Interlock, Kb filter,Vertical goniometer, graphite monochromator, Scintillation counter detector, 100-240V ac, 50 Hz, 80 kg (approx.) weight.	Rs. 36,90,963	Internal: Physics, Chemistry, Mechanical Engineering, Chemical Engineering, Mining Engineering External:MITManipal, Mangalore University, BASF.	2014	Physics
18	MatLAB and ToolBoxes Software	MatLAB software Network license with associated software made available through the Campus Network to all users.	6501817	Installable software is avaialble in the NAS for all bonafide users of NITK. License server runs in a Virtual machine	2015	CCC
19	Differential Scanning Calorimeter	DSC working on the principle of Heat flux measurements. The modulated DSC should be able to measure heat flux during heating or cooling from temperatures between – 150°C to 1000°Cin single run, with a temperature accuracy of 0.1 to 50°C/min. The instrument should be usable in inert and oxidising atmospheres.	2966007.9(APF)	M.Tech., Ph.D. & Funded Research	2015-16	Metallurgical & Materials Engg.

20	Aerial Thermal imaging system	Thermal Camera, unmanned aerial vehicle structure, remote controller, gimbal & camera etc	Rs. 31,47,738	Fully utilised by PhD, M Tech students and B tech project students, Contumacy work done for Forest and Archaeological dept.	2016	Centre for system design
21	Next Gen Firewall Sophos XG750 Hardware - Firewall	2 Units of XG750 Firewall in HA Mode as the Internet Gateway of NITK	11870540	Installed in the Data Centre. Controls access through the 2 Gbps WAN bandwidth	2016	CCC

| 22 | Brocade Switches – Core and Access Level with associated Components Networking Components | BR-VDX8770-8-BND-AC VDX8770 8 I/o (Slot Chassis with 6 Switch Fabric Modules, 1 Management Module, 4 exhaust Fan & 3 3000 W AC Power supply unit. Additional Management modules to be ordered separately. Power cord ordered separately-1 unit) 2) XBR-ACPWR-3000 (32-slot NetlronMLXe/XMR/MLX AC 3000W power supply - 3 unit 3) Power cord, India, BS546 To C19, 16A, 25- 6 unit) 4) XBR-RMK-4P-8 (VDX8770-8 Rack kit for flushed or recessed mount on a 4 post rack - 1 unit) 5) BR-VDX8770-MM-1 (Management Module for VDX8770 - 4 and VDX8770-8 - 1 unit) 6) BR-VDX8770-48x10G-SFPP-1 (48x1/10GE, SFP+Blades, No Optics - 1 unit) 7) BR-VDX8770-48x10G-T (48x10G Base -T, copper, | 28958935 + 253000 | Installed in the Data Centre and Academic Buildings connected to the Data Centre through Optical Fiber | 2016 | CCC |

| | | Blades, No Optics - 1 unit) 8) BR-VDX8770-12x40G-QSFP-1 (12x40GE, QSFP, Blades, No optics - 1 unit) 9) 10G-SFPP-LR (10GBASE-LR, SFP + optic (LC), for up to 10km over SMF - 24 unit) 10) E1MG-LX-OM (1000 Base-LX-Om (1000 Base-LX, SFP Optic, SMP, LC Connector, optical Monitoring Capable - 19 unit) 11) 40G-QSFP-SR-4 (40GBASE-SR4QSFP +optic (MTP 1x8 or 1x12), 100m over MMF, 1-pack - 1 unit) 12) 40G-QSFP-QSFP-C-0501 (40GE Direct Active copper cable, 5m, L-pack - 1 unit) 13) BR-VDX877 O-LIC-Layer 3 (Layer 3 License for the VDX 8770- 1 unit) 14) 8770-8-SVL-NDP-5 (Essential App Support 24x7, BR-VDX8770-LIC-Layer 3-Layer 3 Feature Chassis License - 1 unit) 15) 8770L3-SVL-SW-5 (Essential App Support 24x7, BR-VDX8770-LIC-Layer 3-Layer 3 Feature Chassis License - 1 | | | | |

		unit) 16) BR-VDX674 OT-56-IG-F (VDX6740T,48P 1GBASE-T Ports, 240GBE QSFP + upgradeable to 10GBASE-T Via License only-No optics, AC, Nonport side Exhaust Airflow - 1 Unit) 17) XBR-R000295 (Rack Mount kits FRU, UNIVERSAL RACK MOUNT KIT, 4 POST 24-32 DEPTH RCK, VDX 6740T/VDX6740T-1G, ICX7750/7450- I Unit) 18) PCINDIA (power cord india Power cord for fixed port based systems - 2unit) 19) 40G-QSFP-SR4 (40GBASE-SR4 QSFP+optic (MTP 1x8 or 1x12), 100m over MMF, 1-pack-2 unit) 20) 6740-IG-SVL-NDP-5 (Support & Warranty for VDX6740T-1G Essential NBD parts only support, VDX6740T-1G (5 years) - 1 unit) 21) ICx7250-48-2x10G (48-port IGbe switch bundle with 2x1 GbE/10GbE+6x1GbE SFP+ (upgrad- -eable to 10GbE) uplink/stacking ports			

| | | upgrade - 1 unit) 22) PCINDIA (power cord india power cord for fixed port based systems - 1 unit) 23) 1Cx7250-8x10G-LIC-POD (ICx7250 upgrade from 2x1/10GE+6x1GE uplink/ stacking ports to 8x1/10GE uplink/stacking ports, This can only be applied to an 1Cx7250 that already has a 2x10G License applied - 1 unit) 24) 10G-SFPP-TWX-0101 (Direct Attached SFPP Active Copper, 1M, 1-Pack- 1 unit) 25) ICx7250-SVL-RMT-2 (Essential Remote support, 1Cx7250 24p&48p configurations - 1 unit) 26) ICx7250-24-2x10G (24port 1GbE switch bundle with 2x1GbE/10GbE+6x1GbE SFP + (upgradeable to 10 GbE) uplink/stacking ports upgrade - 1 unit) 27) PCINDIA (power cord india power cord for Fixed port based skystems - 1 unit) 28) ICx7250-8x 10G-LIC-POD (ICx7250 upgrade from | | | | |

		2x1/10GE+6x1GE uplink/ stacking ports to 8x1/10GE uplink/stacking ports. this can only be applied to an ICx7250 that already has a 2x10G license applied - 1 unit) 29) 10G-SFPP-TWX-0101 (Direct attached SFPP Active Copper, 1M, 1-PACK-1 unit) 30) ICx7250-SVL-RMT-2 (Essential remote support, ICx7250 24p & 48p configurations - 1 unit) 31) BR-NT WADY-IP-BASE (IP Management SW license for up to 50 devices, required for initial purchase of IP only management; minimum of one year support is required - 1 unit) 32) BNALB-SVL-SW-5 (Essential App support 24x7, BR-NTWADV-IP-BASE - 1				

| 23 | Campus WiFi Phase I Devices , materials and Installation Networking Components | 1) Ruckus Smat zone 100 iwth 4GigE ports, 90-day temporary access to licenses 2) Ruckus zone flex dual-band 802.11 abgn/ac Wireless Access point, 2x 2:2 streams, Beam Flex +, dual ports, 802.3 afPoE support. Does not include power adaptor or PoE injector. 3) Ruckus 802.11ac true outdoor wireless access point, 2x2:2 streams, PoE support, IP67 with mounting kit for outdoor Wireless Access point 4) Mounting bracket or R500, mounts to hard wall/celing outlet box, pole, truss, includes security torx screw 5) Netgear 24port 10/100/1000 Mbps PoE switch with 4SFP ports 6) GE SFP Module, LC Connector, 1000 Mbps 7) 19" 15U wallmount network rack with glass door, lock & key, 2 horrizontal cable managers, PDU with 5 sockets, 2 fans & mounting hardware 8) CAT6 UTP cable (305 Mtr.) | 8255718 + 356305 | Installed in the Data Centre , Academic Buildings and Hostels | 2016 | CCC |

		9) CAT 6 24 Port Patch Panel, loaded 10) CAT6 'I/O with Faceplate 11) Back Box 12) CAT 6 UTP Patch Chord-1Mtr. 13) 12 core SM outdoor armoured cable 14) 12 port LIU with SC Adaptor 15) SC pigtails 16) SC connector, simplex 17) SC-LC ofc patch chord, SM, Duplex 18) HDPE pipe-1" 19) PVC Casing/caping/Flexi/Pipe 1" 20) PVC casing/caping/flexi/pipe 2				
24	Campus WiFi Phases II and III : Devices , licenses, materials and installation Networking Components	(a)1) Ruckus Zone Flexdual-band 802.11 abgn/ac wireless Access point, 2x2:2 streams, Beam Flex+dual ports, 802.3af POE support. Does not include power adaptor or POE (b)1) 901-R500-XX00 (Ruckus Zone Flexdual-band 802.11 abgn/ac wireless Access point, 2x2:2 streams, Beam Flex+dual ports, 802.3af POE	17814438 + 2273510 + 624380 + 1804514	Installed in the Data Centre , Academic Buildings and Hostels	2016	CCC

| | | support. Does not include power adaptor or POE injector
2) 902-0108-0000 (Mounting Bracket for R500. Mounts to hard wall/celing, outlet box, pole, truss includes security Torxsrew)
3) GS728TP (Netgear 24port 10/100/1000 Mbps PoE switch with 4SFP ports
4) 19" 15U wallmount network rack with glass door, lock & key, 2 horrizontal cable managers, PDU with 5 sockets, 2 fans & mounting hardware
5) CAT6 UTP cable (305 Mtr.)
6) CAT 24 Port Patch Panel, loaded
7) CAT6 Patch Chord-1Mtr.
8) SC-SC patch chord, SM, Duplex
9) PVC Pipe/ Casing/caping 1"
10) PVC Pipe/casing/caping 2" injector
2) Ruckus 802.11ac true outdoor Wireless Access point, 2x2:2 streams, PoE | | | | |

		support, IP 67 with Mounting kit for outdoor wireless access points 3) Ruckus Dual band 802.11ac Wifi wall switch, I 10/100/1000 Mbps + 410/100 Ethernet Access ports, PoE in, 802.3af Ethernet 4) Mounting bracket or R500, mounts to hard wall/celing outlet box, pole, truss, includes security torx screw 5) Netgear 24port 10/100/1000 Mbps PoE switch with 4SFP ports 6) GE SFP Module, LC Connector, 1000 Mbps 7) 19" 15U wallmount network rack with glass door, lock & key, 2 horrizontal cable managers, PDU with 5 sockets, 2 fans & mounting hardware 8) CAT6 UTP cable (305 Mtr.) 9) CAT 6 24 Port Patch Panel, loaded 10) CAT6 'I/O with Faceplate 11) Back Box				

		12) CAT 6 UTP Patch Chord-1Mtr. 13) 12 core SM outdoor armoured cable 14) 12 port LIU with SC Adaptor 15) SC pigtails 16) SC connector, simplex 17) SC-LC ofc patch chord, SM, Duplex 18) HDPE pipe-1" 19) PVC Casing/caping/Flexi/Pipe 1" 20) PVC casing/caping/flexi/ pipe 2" (c) Installation and Configuration (d) Licenses				
25	LC -MS Systems & Accessories	Flow Range: 0.001-2.000ml/min, Low Dispersion System, Manual Injector, Column heater and cooler, Plunger seal wash, Solvent bottle Tray, Ion Source and Interface,SingleQuardrupole Mass detector .range :30 to 2000 m/z, Accuracy :equal to or better than ±0.1amu. Computer and Software, UPS-7.5 KVA	60,02,979.00	Research and consultancy work	18.02.2016	Chemical Engineering

26	FPLC (NGC Chromatography system with accessories	Flow rate: Not less than 0.001 to 10ml.Pressure range:0 to 18MPa or more.Buffer: Dual Pump system.Conductivity monitor, UV/VIs Detector, Automatic sample Injection, Automatic Fraction Collector, Multi user licensed Software, Computer, UPS-5KVA	26,11,200.00	Research and consultancy work	03.08.2016	Chemical Engineering
27	ICP -OES Spectrometer with accessories	ICP System which is able to simultaneously measure major, minor and trace elements, be able to measure 70 or more elements in max 1min, mass flow controlled nebulizer, Computer, 5 channel pump, Colony Spray chamber, Output range : 700-1500watts, Wavelength below 189nm, Spectral range coverage :167nm to 785 nm, Instrument including Multimode system Introduction system, Water Chiller, Cylinder, Fume Hood, UPS-10KVA	32,46,284.00	Research and consultancy work	04.03.2016	Chemical Engineering

28	High Performance Computing Cluster Hardware and Software	Dell Power Edge R430, Power Vault MD 3060e, 6GB SAS, 4U-60 Drive Dense, Power Edge C6320, Dell Power Edge 6320P, Power Edge C4130 Server, Dell Networking H1048-OPF, 48 Port unmanged Edge, Dell Networking N2048, L2,48x1 Gbe+2x10Gbe, Net shelter Sx42U server Rack, KVM Switch with Rackmounted LCD Display, Meter PDU, Latest Edition of Intel Parallel studio Cluster for linux-Academic Floating License, Uninterrupted power supply	20538740	Installed in CCC Ground Floor in a separate room and made available to all through the Campus Network.	2017	CCC