DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY ENGINEERING, VJTI, MUMBAI

CSR Proposal

Department of Computer Engineering and Information Technology

Sr. No.	Classroom/laboratory/Seminar Hall/Project room/ washroom (mention name of item for renovation/ refurbishment)	Dimension (Area Sq.m) Or Sq.ft. X Sq ft	Mention requirement: Colouring, tiling, ceiling, decorating, renovation etc.	Approx. cost*	Please insert photos here (Existing and/or proposed plan/pic, as per architect impression)	Remarks: (pl. mention utilization / outcomes of proposed work)
1	Computational Infrastructure	**Annexure -1 attached**				
2	Second floor renovation	**Annexure -2 attached**				

Research facility Requirement under CSR:

1. **Educational lab equipment**
2. **Departmental infrastructure development requirements (Renovation of: Classroom / labs / Seminar Hall, Project room, Washrooms)**
3. **Academic Software**
4. **Teaching and learning facilities such as AV/VR, Smart Boards Etc.**

Annexure -1

Title: Computational Infrastructure

Dimension:

Requirements:

- ITEM 1: - DGX A100 – Qty 1Nos.
  - GPUs: 8 X NVIDIA® A100 40 GB
  - Performance (Mixed Precision): 5 Peta FLOPS AI
  - GPU Memory: 320 GB Total System
  - NVIDIA NV Switches: 6
  - SYSTEM POWER Usage: 6.5KW max
  - CPU: Dual AMD Rome 7742, 128 cores total, 2.25 GHz (base), 3.4 GHz (max boost)
  - System Memory: 1TB

- Networking: 8 x Single Port Mellanox ConnectX-6 VPI 200Gb/s HDR InfiniBand 1x Dual-Port Mellanox ConnectX-6 VPI 10/25/50/100/200 Gb/s Ethernet
- Storage: OS: 2x 1.92TB M.2 NVME drives Internal Storage: 15 TB (4x 3.84 TB) U.2 NV Me drives
- Software: Ubuntu Linux OS Also supports: Red Hat Enterprise Linux; CentOS
- System Weight: 271.5 lbs (123.16 kgs) max
- Packaged System Weight: 359.7 lbs (163.16 kgs) max
- System Dimensions Height: 10.4 in (264.0 mm) Width: 19.0 in (482.3 mm) max Length: 35.3 in (897.1 mm) max
- Operating Temperature Range: 5–30 ˚C (41–86 °F)

- Ethernet Switch - Qty 1 Nos.
  - Tyrone Switch (25G): 1x 25GbE/100GbE 1U Open Ethernet switch, 48 SFP28 ports and 8 QSFP28 ports
  - IPMI Switch: 1x 1G layer 3 Switch

- Cables/Cards/Rack
  - Cat6 Cable: 6x 3m Patch Cable
  - Cable: 2x Mellanox Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 26AWG, CA-N
  - cable: 1x ConnectX-6 EN network interface card, 100GbE dual-port QSFP28

- Cable: 6x 25G DAC cable

- Storage – 1Nos.
  - Verta D4ZC-24S
    - Populated with 12x 4TB SATA 3.5" HDD hot-plug
    - Populated with 12x 1.9TB SATA 2.5" HDD hot-plug
    - Single-Controller Unified Storage (File & block)
    - Supports both Block (iSCSI, FCP, SRP) & File (SMB, NFS, FTP, AFP) protocols (work and Card)
    - Host Interface: 2 x 10G Base-T, 4x 10G SFP+
    - Supports RAID 0,1,0+1,5,6,50 & 60 Supports up to 12 hot-swap HDDs/SSDs in same enclosure
    - Built-in Snapshot with rollback
    - WebUI for setup and configuration
  - Hardware Details
    - 1 x Intel Xeon processor (10C/20T 2.4G)
    - 64GB DDR4 ECC memory
    - 1+1 Redundant power supplies
    - 4U form factor

- TCM
  - Deploys easily: Easily turn a pile of hardware into a fully functional cluster in under an hour
  - GUI web-based Cluster Manager: Manage your infrastructure through one single pane of glass
  - Deep health checking capabilities Insightful metrics
  - Optimize cluster usage: Easily move and allocate apps as demand for resource change
  - Provision OS on physical or Virtual Machine
  - Support multi environment clusters by using different server architectures
  - GCC Applications: Option to compile over 50 GCC applications with web Interface.
  - Quick configuration of management node services
  - Remotely Manage systems | Support & Maintenance
  - InfiniBand Support | High Availability | Cloud Builder
  - Hardware details
    - Processor: 2 x ICX 6338 2P 32C/64T 2.0G 48M 11.2GT 205W
    - Chipset: Intel C621A chipset
    - RAM: 8 x 64GB DDR4-3200 ECC RDIMM (Max. 16 DIMMs)
    - SSD: 2 x 480 GB SATA 2.5" SSD

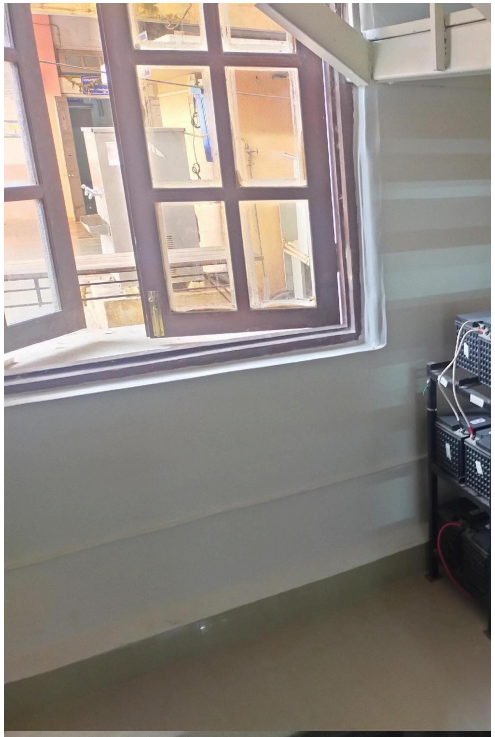
- SSD: 1x 1.92TB NVMe M.2 3 DWPD
- RAID: RAID Controller for RAID 0, 1, 5, 6, 10
- Management: IPMI 2.0 with virtual media over LAN and KVM-over-LAN support
- Video: ASPEED AST2500 BMC (Onboard)
- NIC: Dual 10GbE Ethernet LAN (onboard) 1x Port shared with IPMI, Single 1GbE Ethernet LAN
- AOC: Dual port 25G Network card
- Exp. Slots: 8x PCI-E 3.0 x16
- Ports: 4 x USB 3.0, 1x VGA, Management port
- P. Supply: 600W Redundant Platinum Level 80 PLUS Certified Power Supplies
- Chassis: 2U Rack mountable (12 x 3.5" Front Hot-Swap)
- TCM: Tyrone Cluster Manager
- OS: Open-Source Linux
- Warranty: 3 years warranty

Approximate cost: **INR 250.00 Lacs** (Rs. Two Hundred and Fifty Lacs only)

Description	Quantity	Estimated Cost (INR)
DGX A100	01	Rs. 2,11,86,440.00
Ethernet Switch	01	

Cables/Cards/Rack	Included	
Storage	01	
TCM	03	
Login/Compute Nodes	01	
GST @5 % (Against DSIR Certificate)		Rs. 38,13,559.32
Price with GST		Rs. 2,50,00,000.00

Photos



Proposed outcomes/utilizations:

- **Outcomes:**
  - Accelerated Research: HPC infrastructure allows researchers to perform complex simulations, data analysis, and modeling at high speeds, leading to faster scientific discoveries and innovations.
  - Scientific and Engineering Research: The primary outcome is to advance in scientific knowledge and make breakthroughs in various fields.
  - Education and Skill Development: Infrastructure is used for training the next generation of scientists, engineers, and data analysts.
  - Scientific Collaboration: Collaborative research efforts among different organizations, fostering innovation and knowledge sharing. It facilitates partnerships between educational institutions and industries, allowing research collaboration and problem-solving.

- **Utilizations**
  - Infrastructure will be used by 750 students of the Computer Engineering and IT department. Apart from them, other branch students can use the facility for the research and education purpose.

Annexure -2

Title: Second Floor Renovation

Dimension:

Requirements:

- Restructuring of the second floor.
- Renovation of second floor which includes, Colouring, tiling, ceiling, decorating, renovation etc.
- Creation of state-of-the-art classrooms and faculty cabins.

Approximate cost: **INR 50.00 Lacs** (Rs. Fifty Lacs only)

Photos


LECTURE ROOM
व्याख्यान कक्ष

Proposed outcomes/utilizations:

- **Outcomes:**
  - Enhanced Learning Environment: Renovated classrooms with modern amenities and updated technology can create a more engaging and conducive environment for students, leading to improved learning outcomes.
  - Improved Aesthetics: Aesthetic upgrades can create a more appealing and inspiring atmosphere for both students and faculty, contributing to a positive and motivating learning experience.
  - Technological Upgrades: Renovations can incorporate the latest educational technology, such as interactive whiteboards, audio-visual equipment, and high-speed internet, which can enhance teaching and learning.
  - Increased Comfort: Upgrades in seating, lighting, and temperature control can make classrooms and faculty cabins more comfortable, promoting a more conducive learning and working environment.

- **Utilizations:**
  - Interactive Learning: Renovated classrooms can be used for interactive and collaborative teaching methods, enabling group discussions, problem-solving, and project-based learning.
  - Modern Teaching Tools: Faculty can make use of the technological upgrades for more interactive and engaging teaching, incorporating multimedia resources and online tools.
  - Student Support: Renovated faculty cabins can also serve as spaces for academic advising, mentoring, and student support, promoting a closer relationship between faculty and students.
  - Events and Seminars: Renovated classrooms can serve as venues for seminars, workshops, and academic events, enhancing the institution's overall academic atmosphere.

- Improved Work-Life Balance: Comfortable and well-designed faculty cabins can contribute to faculty members' well-being, allowing them to work more effectively and maintain a better work-life balance.