

GUJARAT COUNCIL ON SCIENCE & TECHNOLOGY
Dept of Science & Technology, Govt of Gujarat

1. Introduction:

World-wide supercomputing facilities have enabled countries in their S&T capabilities in many areas such as weather prediction, real time tracking of natural phenomenon, gene sequencing, discovery of new life saving drugs, designing vehicles, aeroplanes, massive structures like high rise buildings and bridges, infrastructure, discovery and extraction of new energy sources including oil, natural gas and so on. The supercomputing facilities aims to further such capabilities beyond current levels.

The GUJCOST supercomputer facility aims to provide capacity building among students and faculties with advanced technologies to perform high-end computations for scientific, engineering and academic programs to address and catalyze the research using modelling, simulation and data analysis. The facility will also help in promoting research by integrating leading-edge emerging technologies at the grass root level.

2. Objective of the Supercomputer:

- A. Create a pool of skilled professionals for pursuing research and development in the area of High-Performance Computing (HPC) and promote the use of HPC systems and parallel programming in several application domain areas.
- B. Creating employment opportunity students / researchers for R&D organization and industry.
- C. Disseminating advanced computing techniques useful in many research academic semester projects and Ph.D. thesis.
- D. Introduction of HPC and Deep Learning as a subject in the academic/engineering the curriculum at UG/PG level.
- E. Providing a base of Supercomputing expertise to develop interdisciplinary computational science and deep learning degree programs.
- F. Help professor and faculty members in developing funding proposals for High-Performance Computing(HPC) and Deep Learning (DL) research-based projects, providing not only a set of resources to list in proposals but also expertise on emerging issues that are of interest to funding agencies.
- G. Encouraging possibilities of various national and international labs for joint research in High-Performance Computing (HPC) and Deep Learning (DL) arena.

3. Programs and Activities:

- 1. Faculty and students across all academic/engineering disciplines can be educated in computational science and deep learning techniques, and thereby positioning them for careers in cutting edge science and technology.

2. Faculty and Researchers who employ High-Performance Computing (HPC) and Deep Learning (DL) in their engineering software can be educated in software design methodologies that allow maximal exploitation of computing resources for complex problem-solving environments.
3. Faculty and students can incorporate into their research codes the techniques of sound software design, coding, debugging, testing, maintenance, porting and performance evaluation.
4. Students can be taught to act as consultants to application teams that use supercomputing and deep learning techniques by providing a pathway for disseminating knowledge.
5. Student researchers can have opportunities to present ongoing projects to an audience of HPC and DL educated colleagues, in order to obtain feedback on improving their investigations.
6. Interactions with relevant stakeholders including industry, academia and students from other colleges and universities.
7. Faculty and researchers can apply for and obtain funding for project proposals involving supercomputing researches.

4. Terms and Conditions:

1. Supercomputer Facility is planned to be setup in a dedicated space of institution with air-conditioning for saving the acquisition and infrastructural cost.
2. The institute shall display a banner/signage stating the "Supercomputer Facility by Gujarat Council on Science and Technology (GUJCOST), Department of Science and Technology, Govt of Gujarat" at the entrance and an appropriate entry sight of the institution, which is easily visible to the stakeholders.
3. Institute shall bear the maintenance and operational cost of the equipment/instrument, tools accessories, etc. that may fall outside the scope of warranty.
4. Total setup time for making the Supercomputer operational will be up to 3 months from the date of the Memorandum of Understanding (MoU) with GUJCOST. If the institution is unable to start the program within six month of the receipt of the package of equipment/ instrument, the approval shall ipso facto lapse.
5. The assets acquired out of the grant-in-aid shall be the property of the institute. However, no assets acquired out of the grant-in-aid shall be disposed without the permission of the GUJCSOT.
6. Each Supercomputer Facilities has to develop at least ten (10) innovative and tangible project/product/process in a year.
7. Institute has to depute students and faculty members for necessary training planned by CDAC/GUJCOST.
8. One workshop on High-Performance Computing (4 Days) for 10 identified institutes at a mutually identified location.

9. Each institute has to train at least 10 students as per DST/GUJCOST/CDAC guideline. The details of trained students should be submitted yearly to GUJCOST office.
10. The timings of the Supercomputer Facility should be such that it allows aspirants to come at any time during the working hours of the host institution (Applicant) to use the facilities. During working hours, specific time periods may be defined and included in the curriculum of students to introduce the concept of the supercomputer facility.
11. Supercomputer Facilities should develop a network with industries, academia, research institution, civil society for knowledge sharing and mentoring support.
12. The faculty In-Charge of the Supercomputer Facilities would ensure adequate safety and maintenance of supercomputer along with records usage in a logbook regularly. The project coordinator has to submit a copy of logbook to GUJCOST in a quarterly report.
13. If, the coordinator leaves the institution, retires or goes on long leave, or absentia of coordinator for any other reason, the institute shall appoint another competent coordinator to the Design Lab, under intimation to the GUJCOST immediately.
14. In order to foster innovations amongst students, the following activities may be conducted by Supercomputer Facilities:
 - i. Monthly programs to teach and explain students about different concepts – ranging from ideation, design, prototyping, networking to physical computing. Workshops on problem solving, designing and fabrication of products etc.
 - ii. Interactions with relevant stakeholders including industry, academia and students from other colleges and universities.
15. Operation of the Supercomputer Facility would be monitored on a suitable periodic basis by an Advisory Body comprising of following suggested members:
 - a) The principal of the Institution/College – Chairman
 - b) Project coordinator of the Supercomputer Facilities – Convener
 - c) A representative from local industry / local community /young innovators / reputed academia/alumni – Three Members
16. The advisory body will be constituted by the institution. It will meet at least thrice in a year and Project coordinator has to submit Minute of Meeting (MoM) and reports to GUJCOST.
17. Any Research paper published or presented with help of Supercomputer then each such paper should write acknowledgment of support in name of GUJCOST and Department of Science and Technology, Government of Gujarat. The project coordinator has to submit the copy of such published paper to GUJCOST office.

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