**NATIONAL STUDENT CLUSTER BUILDING COMPETITION PROGRAM SCOPE**

The student cluster building competition is a research and innovation program where undergraduate students undergo training to build small research clusters which can perform like ordinary supercomputers. They will foster critical skills in high performance computing and research which they will use long after leaving their institutions. They will test run applications from different domains in science and other disciplines during the training sessions. This gives them insight on how they can use the applications on an HPC cluster for research purposes. After the training each team is required to come up with a research project using HPC which has a national impact in the following domains:

1. Geospatial and Earth Sciences (agriculture, weather forecast, mining, disaster recovery)
2. Drug Discovery
3. Artificial Intelligence (AI)
4. Bioinformatics
5. Computational Chemistry
6. Financial Analytics
7. Big Data Analytics

* Each team must consist of 6 students and 2 mentors.
* The competing student teams design and build small clusters, learn scientific applications, and apply optimization techniques for their chosen architectures in a non-stop, 48-hour challenge.
* Teams will run several real world applications during the 48-hour competition to solve problems of their choice in the given domains. Each real world application will consist of datasets to be analysed.
* Each team should send a write up describing how they will prepare for the competition that includes meeting regularly to work on cluster development, explore research topics, practicing and attending guest lectures, etc. They can mention any classes the team members are taking that directly relate to the competition and explain how they will benefit the team.
* They should also describe their team’s educational goals and what they hope to gain by participating in the competition .Teams should aim to be unique.
* Project topic and applications to be used should be submitted to ZCHPC before the competition (due date to be advised)
* The winning teams will participate in regional and international programs.