

# CubeSat Project

Its celebration time for the Department of Aeronautical Engineering at Bharath Institute of Higher Education and Research as Mr. M. Anand, former student and a Junior Research Fellow in the department will be going along with his team to the USA to represent the institution on a satellite launching event by “Cubes in Space™”.

Cubes in Space™ is a program by idoodledu inc., It is the only global competition for students to design and propose experiments to launch into space or a near space environment on a NASA sounding rocket and zero-pressure scientific balloon at free of cost.

Cubes in Space™ is organizing RocketFest 2019, a three day event surrounding the Sounding Rocket-6 (SR-6) mission that launches on June 20th from NASA Wallops Flight Facility on Wallops Island, Virginia, USA. The events celebrate the students' accomplishment of launching their experiments into space.

Mr. M. Anand's team comprises of the following third year students Mr. Santosh Kumar Sahu from Jharkhand pursuing B. Tech – Aeronautical, Mr. Abhijit Sarkar from Hyderabad pursuing B. Tech – Aeronautical and Mr. Pranay Gopal Gondal from Maharashtra pursuing B. Tech – Aerospace. They had designed experiments on composite materials made of natural fibers to study the effect of very low pressures, varying temperature and radiation of the upper atmosphere on the structural properties of the composites.

Composites are being used widely in the aerospace sector and unlike metals, composites are unique. Natural fiber composites have proven to be better alternatives for conventional materials so far on Earth. But, we do not have sufficient data on the mechanical behavior of composites in upper atmosphere or space and the effect on their structural characteristics. Hence, this experiment has been proposed.

Apart from this Mr. M. Anand of Bharath has many other feathers to his cap. Notable being, his research on “Hybrid motor-bike”, where he fabricated an auxiliary system to convert an ordinary motor bike to a motor bike that can run on water. He received the Young Scientist Award for this project from the “Gandhi Young Technological Innovators” organization. Recently, he also worked on “Plant Microbial Fuel Cell”, a custom made device to extract electric energy from plants to power low wattage devices. He received many national level awards for his projects.

He says his inspiration comes from the steps taken by the department and the management of Bharath for the welfare of the students. The management and the department work hard to arrange one on one talks / seminars from various national and international experts in the field of aerospace technology.

Cosmonaut Salizhan Sharipov from Roskosmos State Corporation visited the institution and inspired the students with his talk on future space ventures. The seminar by the Cosmonaut motivated not just the students of aeronautical engineering but everyone including the staff. He also promised to personally train five worthy students from Bharath at Roskosmos. The management of Bharath will sponsor the full expenses towards the training of the students. Cosmonaut Salizhan Sharipov is currently an adjunct professor in the Department of Aeronautical Engineering. The interaction with the Cosmonaut is one of the strong reasons for the current development in the department and also the kindle for the students interested in aerospace to carry out active research. Certainly, this would not have been possible without the unconditional support from the management of Bharath towards providing the necessary lab equipments, tools, raw materials and computing facility to the students and faculty members to contribute to the society through research and development.

Research being an important part of the course of study of the students, the management of Bharath set up many separate lab spaces for the students namely, BIHER Students Innovation Center for Defense Applications, Satellite Laboratory and George Cayley Aeromodeling Club.

Astronaut and Whistleblower Dr. Ken Johnston of NASA, and Mr. Shaun Moss, founder of Mars Research Station also visited the institution and talked to the students about space colonization. They have also promised to guide and train interested students in the field of aerospace engineering.

Apart from these, the department also organizes for talks on subject matter and general aviation industry by experts from IIT's and research organizations and workshops on recent technologies from experienced industrial experts which help the department to identify and nurture the innate talent of the students. The management encourages the students to participate in various competitions, sports activities, technical events and conferences so that the students can showcase their talents. The management offers all the necessary support to the students. The students are also encouraged to publish their research findings in reputed journals. A separate department has been established for publications so that the students and faculty members get the necessary guidance and support starting from writing their paper, reviewing it and getting it published from a panel of experienced professors of the institution. Truly, "To the stars and beyond", is the rightful motto of the institution.