

Young Scientist Internship Program

with Team Indus

What's Out There?

'What's out there?', was the question with which my four-week journey on space and space technology began, with VSSF and Team Indus. Having been selected from VSSF's SPOT 100 test, by Team Indus for the Young Scientist Internship Program (held online due to the prevailing COVID-19 restrictions), I joined a batch of over 25 students from various parts of India.

All of us got together online over the weekends for classes that took us on a shuttle across secrets that the vast vacuum of space hid. The weekdays were busy with completion of assignments for the subsequent weekend. The faculty joined us from various parts of the country and introduced us to new and interesting topics with discussions that engaged us. It was encouraging to be featured as Student of the Week twice during the course of the four-week internship based on the assignments and class quizzes.

The program touched upon many aspects of space and space technology instilling in us ways to think differently and come up with our own solutions.

The first session took us back in time to the first-time space was introduced to man. Our early attempts to reach out to space and how great thinkers and intellectuals in our past, paved out possibilities and foundations to make space exploration possible.

Then followed sessions, where we were taught how to work and compute on software like GMAT using which we learnt to configure a spacecraft for Hoffman's Transfer missions. MATLAB, was another new programming language that was introduced and I thoroughly enjoyed its advanced features and versatile nature. I also got the opportunity to learn about Arduino and use it in an assignment for the avionics session.

Sessions on subsystems such as the Power Systems, aerospace propulsion systems, design and structure of a satellite where we learnt how to allocate and fix positions of the fuel and oxidizer tanks, satellite communication, avionics were some of the other new concepts that were interesting. The session on propulsion had me getting curious about the working of the nozzle and I enjoyed the description and functioning of the various engine systems. The way these systems and space departments work to discover, analyse and calculate data were very well explained and gave us an insight into how space organizations work.

One concept that had me intrigued was that of Swarm Rovers introduced by one of our mentors during the avionics session.

The guidance, navigation and control (GNC) session which included image processing, descent strategy, working and application of various sensors and computing using MATLAB is what I found most interesting during the course of the internship and may consider working in this field of space science and execution in future as opportunities present itself.

I would like to thank my school which gave me this great opportunity to explore various fields where science is applied.

The whole program was an amazing journey. The best thing about infinite space is that as we delve deeper into this ocean new questions are thrown out and we come back to where we started - with some questions answered and some unanswered, after all What's Out There?...

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