StellarXpress

FEBRUARY 2021 NEWSLETTER

Program Update

StellarXplorers will be going virtual with our National Finals! Stay tuned for who moves forward following the Semi-Finals Competition.

Contents

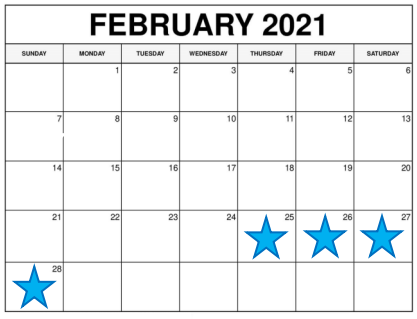
Space Careers

Guide, Navigation, and Control Engineering

Guide, Navigation, and Control (GNC) engineers are primarily responsible for designing and testing the subsystems that control the flight paths of spacecraft and other aircraft. Much of their work involves running computer simulations to determine how control and flight systems would perform under certain conditions. GNC engineers must also be able to model these simulations for other members of the development team. Their work is heavily involved with modeling and programming, and therefore is critical to have experience with modeling software like MATLAB and various programming languages.

"Being a GNC engineer gives you a chance at being the ultimate puppet-master of space vehicles. We take commands from software and use our modeling of actuators and measurements of the environment around our systems via sensors to control anything that moves. Our discipline deals with the detailed control of small actuators up to the guidance and control of the space vehicle as a whole as it carries out its mission." – Jay Panchal, Guidance, Navigation, and Control Engineer, LM Space

STLX VII DATES



Semi-Final Round: 25-28 February 2021

Coming up:
Final Round: 14-17 April 2021
STLX VIII Registration: May 1 2021

Stellar Spotlight

Tim Brock
Director of Competition

As Director of Competition, I develop all the scenarios used during the competition. I come up with the idea for the space problem to solve, research and write the Scenario Booklet, develop the STK VDF file, and send out the pre-round emails to all the Team Directors. During the competition, I run the exercise operations, answer questions from the teams, file all the solutions we receive, and then grade those solutions. After the round, I write and send out the teams' scores along with their score sheets and I review and rule on all scoring appeals. I post the team scores on the StellarXplorers Website. I'm also responsible for maintaining the StellarXplorers Rules & Regulations.

As a life-long "space geek", I've been very lucky to work in all fields of space operations including tracking, flying, building and launching satellites. My goal in StellarXplorers is to bring that experience to as many of our competitors as possible. It gives me the greatest pleasure to hear one of our Team Directors say, "My team is arguing about a satellite issue just like I did when I was in the space business." That is my goal: what is it like to work as a real aerospace engineer and to solve a task with my fellow teammates.

I hope we will continue to see the StellarXplorers program grow and reach more and more young people. Our country needs enthusiastic young folks that want to get into the space field. I can't think of a more exciting time to be a "space geek" than right now. As one of our competitors once said, "They don't want us to just like space stuff, they want us to love it!" Absolutely!

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Aerospace News

Northrop Grumman Antares rocket launches Cygnus cargo shit to space station for NASA

On Saturday, February 20, a Northrop Grumman cargo ship lifted off, carrying vital supplies for astronauts on the ISS.

The Aircraft is hauling 8,200 pounds of cargo that include scientific equipment, new hardware, spacewalk equipment, fresh food, and supplies for the seven astronauts on board the station.

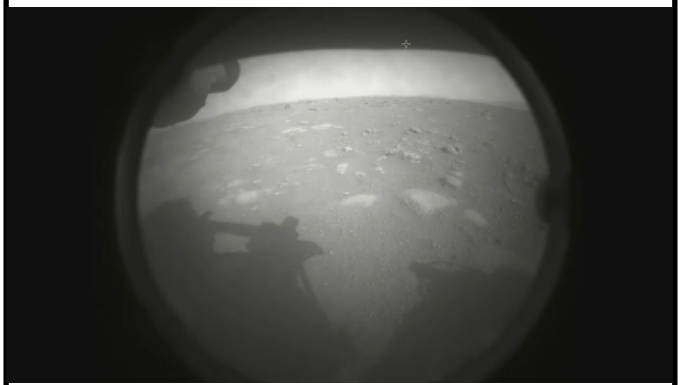
Apophis set to fly by on March 5

On March 5, the asteroid Apophis will be the closest its been or will be to Earth until 2029, passing by at a distance roughly equal to the distance between Earth and the Sun.

In 2029 Apophis will pass through the area of high altitude satellites, however it won't be close enough to hit Earth. An object this large getting this close to Earth happens once every 1,000 years, so mark your calendars for 2029!

Perseverance Lands on Mars

On February 18 NASA's Perseverance Mars Rover landed in the Jezero Crater. Now that it's landed, the handlers will prepare Perseverance for its time on Mars. They spend the time stabilizing it's power, thermal, and communications systems, and then switch over to new, surface-tailored flight software. There's a lot to be excited about with Mars exploration and Perseverance just getting underway!



First image captured by Perseverance

SoaringXplorer

Hassan Twiet, Palos Verdes Peninsula High School

Hassan teaches at Palos Verdes Peninsula in Rolling Hills Estates, California. Their school has been a part of StellarXplorers since our National Deployment, and have even brought home two National Championships!

"The competition is a natural conductor for kids interested in the Aerospace Industry ". Palos Verdes High School is right near Los Angeles' offices for many titans of Aerospace in Lockheed Martin, Northrop Grumman, Boeing, Raytheon, and others, all right there in their backyard. "Students are able to take that interest from StellarXplorers and take it to tours at their facilities and start seeing even more real world applications of what they learned during the competition."

Hassan emphasized that StellarXplorers has motivated many of his students to pursue a STEM Career. He even had a student a few years back that went on from their High School to attend the United States Air Force Academy, and was the first freshman assigned to work on a satellite in the Academy's history!

Aerospace Opportunities!

The Lockheed Martin Vocational Scholarship Program is open to seniors graduating in 2021 that are pursuing an associate degree, credit-bearing certificate or an industry-recognized credential.

Up to 150 scholarships of $6,600 each are offered for study at a U.S. accredited vocational-technical school, trade school, two-year community college or state college.

The deadline to apply is March 11, 2021.

The Lockheed Martin STEM Scholarship Program is open to students pursuing bachelor's degrees in engineering, computer science or physics who demonstrate need and come from underrepresented or underserved communities.

Up to 200 renewable scholarships of $10,000 each are offered for full-time study at a U.S. accredited four-year institution.

The deadline to apply is April 1, 2021.

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Civil Air Patrol Mission to the Moon Update

Last weekend, on February 20, the microchip/payload was picked up from Cornell University and was transported to Astrobotic Technology, Inc in Pittsburgh, PA.

Following this, Astrobotic will be handling the process of installing the microchip onto the lander. Once the Peregrine Lander has everything fully loaded, including science equipment from 6 countries and the microchip, it will be transported to Florida for launch!

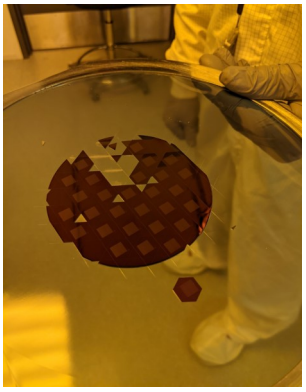

Photo courtesy of Cornell NanoScale Science and Technology Facility

Stay tuned for more updates about where we all are in the process as Civil Air Patrol gets ready to send this chip onto the moon! Virginia Wing, CAP, is posting updates on its page with the journey of the chip, which you can check out here!