

# Beyond! Project in which Tec student participated sent into space



**Cosette Valenzuela**, an engineering student from the Tec's North Sonora Campus, is on the **winning team** of the 2021 **AEXA International Air and Space Program**, whose project will be tested in **outer space**.

The **JPL** (**Jet Propulsion Laboratory**) team that Cosette is on won thanks to its *Úrich* compliant mechanism project.

This project will be tested by **NASA** on **March 14, 2023**, at the **International Space Station**.

A **compliant mechanism** is a flexible instrument that achieves force and motion transmission through elastic body deformation.

The **International Air and Space Program** selects 60 international students to visit **NASA** facilities and the **Space Rocket Center** in **Huntsville, Alabama**.



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## Úrich: a space project

“Our project is a **mechanism made of materials that can be subjected to space conditions** and we’ve called it **Úrich**, which means ‘small land snail’ in the Maya language,” explained Cosette.

Cosette said that the project came up with the solution of a **2D (two-dimensional)** design, since it had to be adapted to the **MISSE (Materials International Space Station Experiment)** module in order to be tested.

**“We’ll take the project to the International Space Station for testing over 6 months in March 2023.” - Cosette Valenzuela.**

“We thought of some shapes that could work in 2D, such as the wheel rim of a car. And that’s how we came up with the idea of the shape of a snail,” she added.

One of the greatest challenges for Cosette and her team was the variety of changes in mechanism materials and designs:

“We then had to carry out **finite element simulations to detect flaws in the project**. It really was a lot of hard work, but with the help of everyone on the team, we managed it.”

The engineering student, together with her team, was selected as one of the challenge’s 3 winners in the Best Mechanism category.

## What's next for NASA's "snail"

"We'll take the project to the **International Space Station** for testing over 6 months in March 2023," added Cosette.

Cosette explained that they will be receiving monthly updates from the station to find out about **Úrich's** behavior.

"We'll continue to be in contact with **NASA** for project improvements and for its physical implementation. Once it's launched, we'll look at the behavior of the mechanism in space over a certain period of time," concluded the student.

**José Manuel Nieto, Director of the Mechatronics Engineering program at the North Sonora campus**, explained that involving students in space programs is very positive for their education:

*"It gives them opportunities to **fulfill their potential by** contributing to advances in **science, technology, aeronautics, and space exploration** to improve **knowledge, education, economic vitality, and caring for Earth.**"*

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