

AGENCY

First ever ESA Academy's Spacecraft Testing Workshop 2022 sees students act as test engineers and run successful environmental test campaign

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In brief

ESA Academy are proud to announce the completion of their Training and Learning Programme's first ever Spacecraft Testing Workshop. Designed to familiarise university students with the crucial topic of environmental testing for space missions, it contained content and experiences to complement academic curricula.

In-depth

— Students inspect hardware after test

The Workshop ran from 25 to 29 April 2022. In attendance were 16 university students with an engineering and/or science background from eight [ESA Member States](#) and [Slovenia](#), studying for bachelor, master, or PhD degrees across 14 different universities. The Workshop was supported by several high-calibre experts including [ESA Engineers](#) from ESTEC, the European Space Research and Technology Centre in Noordwijk, The Netherlands, and [ESEC](#), the European Space Security and Education Centre in Redu, Belgium. These trainers have many years of experience within various domains of spacecraft testing, which proved invaluable when sharing examples from real-life test campaigns.

Said an Italian student from Sapienza University of Rome: *"This was a fantastic, inspiring, and high-level Workshop in an extraordinary location, with great colleagues and highly experienced and helpful trainers."*

The week boasted a number of engaging and informative lectures, enhanced with interaction from the ESA experts. Topics covered included:

- Space Systems Engineering
- Space Project Testing
- Product Assurance
- Cleanliness and Contamination Control
- Mechanical Environment and Vibration Testing
- Thermal Environment and Thermal Vacuum Testing
- Functional and EMC Testing
- Radiation Testing

Theoretical content went hand-in-hand with a group project that gave students the opportunity to prepare and execute an environmental test campaign on hardware mimicking a real payload. Students had access to ESA Academy's Training and Learning Facility, and also the [CubeSat Support Facility](#), which is a site for assembly, integration and verification, housing an ISO-8 cleanroom. The students gained a wealth of experience in many areas, including assembly and test procedure preparation, vibration tests using a 20kN Electrodynamic Shaker, and thermal vacuum tests in a Thermal Vacuum Chamber. *"Not only did this Workshop offer a wide range of fascinating lectures, it also gave me the opportunity to apply the theory to a hands-on test,"* said a British student from the University of Surrey. *"That's what makes this Workshop unique."*

— Expert giving lecture in the Training and Learning Facility

As an added bonus, the students enjoyed an exciting opportunity to learn about the ground station and operations activities at [ESEC-Redu](#), as well as the payload in-orbit testing of [Galileo](#), the European Global Navigation Satellite System. Finally, a presentation on further training and hands-on programmes with ESA Academy and ESA's early career opportunities was followed with great interest!

"This Workshop gave me a huge dose of knowledge that I will use in future projects at my university and beyond," explained a Polish student from the Warsaw University of Technology. *"I must admit that before this Workshop I didn't realise that every single moment of a satellite's lifetime could be so fascinating and fun to learn about!"*

To find more information about upcoming and future ESA Academy training opportunities, please check our [current opportunities](#).