

AGENCY

108 students take part in ESA Academy's Concurrent Engineering Challenge 2018!

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Last year, ESA pioneered a new Concurrent Engineering Challenge to educate and inspire university students. It proved to be such a success that a follow-up has now been run and completed.

The Concurrent Engineering Challenge 2018 was held from the 22nd to the 26th of October 2018, at ESA Academy's Training and Learning Facility, ESEC-Galaxia, Belgium. Participating this time were 30 university students from 14 different ESA Member and Associate States, being offered valuable lessons from two experts from ESA's Systems and Concurrent Engineering Section.

"Not only was this challenge an outstanding opportunity to gain an insight into Concurrent Engineering, but we had the chance to improve our skills in the aerospace sector," explained a Spanish student from Ramon Lull University. "The experts helped us to develop our designs and gave us advice for our future careers. I strongly recommend taking part in this experience to any hard-working students willing to be better prepared for the aerospace industry."

The students in ESEC-Galaxia were joined via video conference by three other groups from European universities: Delft University of Technology (Netherlands), Luleå University of Technology (Sweden), and Universidad Politécnica de Madrid (Spain). Each of these groups participated by using a Concurrent Engineering Facility like set-up at their premises, in order to be part of the Challenge. In total, 108 university students took part in this challenge!

— Delft University of Technology students are relaying their results via VC

"What an incredible experience, learning so much in such a short amount of time!" said an excited British student from the University of Bristol. "An amazing way to develop team building and working under time pressures. I thoroughly

recommend it to anyone interested in Space Engineering."

They began on the Sunday evening by playing the EcoDesign game to learn about the environmental impacts of a space mission. They asked in depth questions about the life cycle of a space mission and it was a good opportunity for them to have an introduction on the lifecycle assessment of satellites.

Monday was the first full day. The Challenge began with an introduction to Concurrent Engineering given by the Head of System and Concurrent Engineering Section in ESTEC followed by exercises for students to familiarise themselves with the Open Concurrent Design Tool (OCDT), which is the actual tool used by ESA in professional CDF studies. They also discovered more about the ESA Academy programme.

In the afternoon, the students were introduced to the facilities of each participating group. The goal of the Challenge was to give the opportunity to the participating students to apply the Concurrent Engineering Methodology to a real case mission which was revealed: a constellation of satellites in a LEO or HEO orbit that is serving the following needs of the Arctic Region:

— Mission analysis and Communications teams discussing their preliminary design

- Safety (Search & Rescue)
- Track & Trace shipping control
- Off-shore operations preparation
- Off-shore to land communication
- Space weather applications (e.g. Auroral imaging, observations in Earth Magnetosphere and Radiation Belt)