

AGENCY

New opportunity to participate in ESA Academy's concurrent engineering workshop

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ESA / Education / ESA Academy

ESA's [Education Office](#) is looking for 30 talented and motivated university students with an engineering or physics background from [ESA Member States](#), Canada and Slovenia to take part in the upcoming Concurrent Engineering Workshop set to take place between 14 to 17 January 2020.

Concurrent engineering is a method of designing and developing products for the space sector. Contrary to traditional design methods, in concurrent engineering all subsystems are designed simultaneously. This is a far more efficient way of working, but comes with its own unique challenge: solutions in one area that could impact the design of another subsystem must be instantly identified and communicated between teams. Although concurrent engineering is a more complicated process to begin with, in effect it allows mistakes to be identified – and rectified – earlier, therefore reducing the overall design time.

ESA's main Concurrent Design Facility (CDF) is located at ESA's technology centre (ESTEC) in the Netherlands. However, within the framework of the [ESA Academy](#) programme, ESA has developed a similar facility exclusively for educational purposes, which is located at ESA's [European Space Security and Education Centre \(ESEC\)](#)-Galaxia in Transinne, Belgium. Access to this facility during the workshop complements what students are learning at university by familiarising them with the concurrent engineering approach.

Content of the workshop

The selected students will travel to the green expanses of Belgium's Ardennes region, where the [ESA Academy Training and Learning Facility](#) is located. Guided by ESA systems engineers, the students will learn about concurrent engineering and its benefits, gaining first-hand experience with the [Open Concurrent Design Tool \(OCDT\)](#) and identifying design drivers.

— The system engineers guided the students through the workshop

Students will be given a mission brief, then use concurrent engineering to create a spacecraft design.

Students will be divided into groups of between two and four, and will cover the following disciplines:

- Structures / mechanisms
- Configuration
- Power
- Thermal
- Attitude and Orbital Control Systems (AOCS)
- Propulsion
- Optics / sensors
- Trajectory analysis
- Communications / data handling

Within their groups, students will create a subsystem concept in order to achieve their given mission using concurrent engineering. They will start with a first iteration of all the subsystems along with a budget that they will have to review and present. A second iteration will then be completed according to the identified function tree and product tree and, in the end, the mission design will be finalised and presented by the students.

— Structures team working on their part of the project