

AGENCY

ESA experts teach students during Product Assurance Awareness Training Course 2018

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Product Assurance (PA) is a vital aspect of all space missions. In order to help to prepare the next generation of PA engineers, from 29 May to 1 June 2018, ESA Education Office organised the Product Assurance Awareness Training Course 2018.

PA engineers are responsible for failure-proofing missions. They ensure that the materials, mechanical parts, processes and electrical components used to assemble a spacecraft or launcher are fit for purpose over the entire life of a mission. It is a task that comes with a huge amount of responsibility, and requires a specific mindset and attention to detail.

Attending this second edition of the course at the ESA Academy's Training and Learning Centre were 22 university students with an engineering or physics background, from 12 different ESA Member and Associate States. The training material presented during the course was coordinated by the Product Assurance and Safety Department in cooperation with other technical departments and the Education Office. Active and retired ESA PA engineers and specialists from related disciplines were on-site to deliver the course, giving students a taste of what the job really entails! This was particularly appreciated by a Danish student from the Technical University of Denmark, who explained, "being lectured by experts in each field was an amazing experience and gave me insights to the craft of space engineering and information on product assurance that is unavailable at my home university."

Day one began in earnest by highlighting the course's goal: equipping the students with knowledge of PA, and teaching them how this is implemented in a space project - not only for ESA, but also in the wider space industry. An introduction to the overall context of space projects was then given. Each phase was discussed, along with how PA is implemented at that stage. "Product Assurance is applied to all engineering and management disciplines during all phases of a project to define proper systems engineering processes, check whether these processes are executed as planned, and verify/validate whether this also leads to the right results," explained a Dutch student from TU Delft. "The highly experienced experts gave a complete overview of what this means when working in one of the several PA disciplines."

Participants then gained insights into the various disciplines related to PA, and, in particular, how the issue of space debris poses a challenge for space projects. The day's finale was a visit to ESA's European Space Security and Education Centre (ESEC) and the PROBA Control Room, which was very much enjoyed by all the students!

Product Assurance is a vital part of any successful space mission. The pace did not slacken on day two, which was themed on Quality Management and Assurance, as well as Safety and Dependability. Under the expert tutelage of the ESA PA engineers, the students soon had a real appreciation of how

vital these aspects are for space projects.

Day three and four saw the participants learning about PA-related disciplines, including software; Electrical, Electronic and Electromechanical (EEE) components; radiation effects; and materials and processes. The ESA experts were quizzed about their experience of applying this knowledge in practice, and they were only too happy to provide their insight.

PA in the space industry was the last flavour of the week. The students engaged in group exercises to put their new-found skills to use. All groups completed their challenges, bringing different ideas to the table, and impressing the ESA experts. Finally, the students were evaluated through an online questionnaire, in order to obtain a grade for their course transcript. With this document and their certificate of participation, the students will be able to claim ECTS credit(s) for their respective universities.

"The Product Assurance Awareness Training Course has been a fantastic experience with many interesting and educational lectures", enthused a Slovenian student from the University of Ljubljana. "We were learning from highly experienced experts, they told us many real examples they had in their career. Furthermore, I had an opportunity to meet 21 other students from Europe, with different backgrounds but interested in the same things as I am. We became very good friends and I really hope that we will meet again in the future! I am grateful for the experience that was given to me and I would highly recommend it to students interested in space science."

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