

Open academic position: Full Professor in Space Systems Engineering

Context

As a world leader in higher education and research in aerospace engineering, ISAE-SUPAERO offers a complete and unique range of advanced academic programs including the ISAE-SUPAERO engineering program, the CNAM-ISAE apprenticeship program, the Master of Science in Aerospace Engineering, 16 advanced masters and 6 Doctoral schools. ISAE-SUPAERO has developed a research policy resolutely focused on answering the future needs of the aerospace industry and other high technology sectors.

At the international level, ISAE-SUPAERO is a membership of T.I.M.E and PEGASUS and cooperates with premier European universities (TU Munich, TU Delft, ETSIA Madrid, Politecnico Torino andt Milano, KTH Stockholm, Imperial College, Cranfield), North American institutions (Caltech, Stanford, Georgia Tech, UC Berkeley, EP Montreal...), Latin American and Asian universities. The ISAE-SUPAERO learning community includes 101 professors and researchers, 1800 lecturers from industry, and nearly 1700 undergraduate students. Every year, over 30% of the Institute's graduates are international students, and the alumni network includes over 17000 former graduates.

The scientific activity for Education and Research at ISAE-SUPAERO is organized in departments, including the Department of Aerospace Vehicles Design and Control (DCAS). The DCAS develops models, methods and tools for the design and control of vehicles systems for education and research purposes. Research at DCAS is organized around three research groups: Aerospace vehicle design, Decision and Control, Neuro-ergonomics and human factors.

The purpose of activities related to aerospace systems is to train students to master orbital mechanics, to understand the space environment, its impact on the design and the architectures of space systems, in order to design and conduct space missions and space systems (orbital systems, space transport systems, ground segment and operations).

DCAS research activities in design and control of space vehicles address the issues of space vehicles modelling, optimization and control, performance analysis, trajectory analysis, mission analysis and space systems operations as well as advanced concept architectures.

DCAS space vehicles design activities are carried out in collaboration with the other research departments of ISAE-SUPAERO on topics such as: systems engineering and embedded systems with the Department of Complex Systems Engineering (DISC), satellite data links and instrumentation for planetary exploration with the Department of Electronics, Optronics and Signal (DEOS), large space structures and collisions with space debris with the Department of Mechanics, Structure and Materials (DMSM).

Research on future space concepts from a system and architecture point of view is supported by Airbus DS and Ariane Group via a sponsorship chair (SaCLab chair). The topics of the chair include: in-orbit servicing, production and assembly of structures in space, space debris management, architecture of inhabited space bases (Moon and Mars), architecture of new space transport systems (reusable launchers, concepts integrating innovative propulsion systems), human spaceflight, space weather...

ISAE-SUPAERO space activities are also conducted in the context of the Toulouse University Space Center (CSUT), a scientific cluster gathering 5 academic partners and 3 research laboratories, created in 2016 by ISAE-SUPAERO which has currently its leadership. The CSUT promotes space activities and federates the academic forces of the Toulouse site with the close support of CNES in the heart of a powerful industrial ecosystem in the space field. The CSUT develops in France and internationally research and training activities in the design, integration and operation of space nano-systems, and more specifically nano-satellites. Ongoing nano-satellites projects (ENTRYSAT, EYESAT, NIMPH, ATISE, etc.) are being developed at DCAS, with the other department DISC, DEOS, DMSM of ISAE-SUPAERO, within the CSUT and in collaboration with other national (Grenoble, Montpellier, Ecole Polytechnique, ...) and international academic space centers (SUDOE NANOSTAR project, European COST action project).

In this context, ISAE-SUPAERO is opening a Full Professor position at DCAS for an experienced scientist in the field of space systems engineering to achieve, animate, develop and scientifically pilot a program of training and research activities in space systems engineering.

Missions

This position has two main missions, teaching and research.

Teaching requirements:

The position holder teaches for the benefit of all the trainings of the Institute. He/she actively contributes to the development of teaching and programs in the field of space systems, as well as to the global and transversal reflection on the on-going trainings. His/her missions include:

- The development and the coordination of teachings in the field of space systems,
- The integration into the teaching team and the contribution to the programs up-date,
- The promotion of ISAE-SUPAERO trainings at the national and international levels,
- The supervision of student projects realized in the laboratories of the Institute or externally in the context of research or business partnerships,
- The investment in responsibilities of coordination of the Institute training programs.

Research requirements:

The position holder participates in research activities on design and control of aerospace systems. He/she works in collaboration with the scientific teams of the different departments of ISAE-SUPAERO. He/she contributes to the setting up and management of structuring transversal projects in space systems. To carry out this mission, he/she develops his/her activity within the DCAS, ensuring:

- The prospection, setting-up, management and realization of research projects, expertise or contracts in space systems, in synergy with ISAE-SUPAERO projects and strategic orientations in aerospace, and in collaboration with the other departments of the institute,
- The development and strengthening of on-going collaborations in space systems with national and international academic, institutional and industrial partners,
- The supervision of interns and PhD students,
- The promotion of research activities through communications and publications in high-ranking journals.

Profile

The candidate holds a PhD degree or an engineering degree. The accreditation to supervise research (French HDR Diploma) or significant experience in space program direction will be appreciated. He/she has acquired through his/her training and/or professional background a strong culture and experience in space systems. He/she has skills for teaching and research in space systems, an industrial network and a confirmed experience in setting up and managing projects in the space field.

The determining criteria for the selection are:

- ability to teach and conduct research in space systems,
- training experience to different audiences (undergraduate and postgraduate French and international students, apprenticeship training students, experienced engineers during continuous training programs),
- ability to develop an activity, federate forces, animate and supervise a team,
- ease and efficiency in teamwork, relational qualities, listening and communication skills
- fluency in English written and oral expression.

Contacts

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Validation of DG: