

# Space Applications and Services Space

WITH AIRBUS DEFENCE & SPACE

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## ■ Objectives

The first objective of this program is to give students a broad understanding of space systems and their environment, constraints and capacities in the fields of earth observation, communications and navigation.

The second program objective is to help students, based on real examples and experimental work, to grasp the value of space systems in terms of creating space applications and services in different fields by integrating or not other data. Students will propose and design tools and solutions in fields including the environment, agriculture, transportation and urban planning, among others.

Students shall be capable of both better understanding the performances of space systems and in turn identifying user needs, and developing new complementary integrated applications and services using data and pictures from space systems and other sources (aerial photographs, for example, or field data....).

## ■ Organization

### Head of program

- José RADZIK  
jose.radzik@isae-supero.fr

### Course duration

One year full time

### Course start date

September

### Location

ISAE-SUPAERO Toulouse

### Teaching language

English

## ■ Syllabus

### Space systems – 45 h

Space systems introduction

### Digital techniques – 47 h

Big data and cloud – Digital communication and networking basics

### Earth observation – 115 h

Remote sensing and sensors – Image processing and data analysis  
– Earth observation applications and services

### Navigation and positioning – 25 h

Broadband satellite communication systems - Satellite broadcasting – Telecommunication satellites for mobiles – Satellite telecommunication business

### Space economics and regulations – 25 h

Space applications economy and marketing/laws and regulations

### Services and integrated applications – 20 h

End-user integrated applications and services

## ■ Learning approach

The program is divided into two full-time semesters including:

- 7 months of courses delivered in Toulouse, mainly at ISAE-SUPAERO
- A 4-6 month mission to be completed in a laboratory, an SME, and in particular at AIRBUS DEFENCE & SPACE

### Company internship, professional thesis:

Once coursework has been completed, students shall complete a personal project prepared within the framework of a company internship. This project shall last from 4 to 6 months, with a maximum of 35 hours per week. Upon completion of the project, the student shall defend his or her professional thesis in front of a jury. Students shall earn 30 ECTS for the thesis.

Overseen by an academic advisor and in-company tutor, the project entails the acquisition and development of knowledge and skills within a professional framework.

The subject, which must be approved by the academic advisor and the Director of the Advanced Masters programs, must:

- Give the student the opportunity to prepare for professional activities targeted by the program,
- Be a genuine issue of concern to experts working in the field.
- Must be related to the needs of companies in activity sectors covered by the program.

Students who have already acquired professional experience prior to the program, may complete their project in a research center or laboratory.

## ■ Career opportunities

This advanced master degree offers career opportunities in a wide range of fields:

Jobs related to cross disciplinary use of space data (observation of the earth and its atmosphere, telecommunications, data positioning, data from scientific missions and exploration) in complex information systems

Consulting jobs to identify and define requirements, and implement application solutions using space data,  
New jobs related to New Space challenges.

The advanced master «Space Applications and Services» guarantees a high level of expertise required for today's and tomorrow's international space-related jobs.

Program graduates go on to work as Project Leaders, Business Engineers, Business Development Managers, Consulting Manager, Research Engineer, Expert in Space Applications.

### Companies recruiting our students

Thales, Airbus, CNES, SODERN



## Testimonies



*I have been called upon to take up a position in connection with France's military space policy, and the new Advanced Master in Space Applications And Services (SPAPS), inaugurated at the start of the 2017/2018 academic year in a collaboration between Airbus Defense and Space and ISAE-SUPAERO, appeared to be the best way to acquire the technical skills needed for my future responsibilities. The SPAPS Advanced Master is the perfect response to the training needs of officers seeking to acquire a specialization in this area. It provides an overview of all the activities in the space sector, thus ensuring a high level of expertise not only in the field of space-based telecommunications, but also in remote sensing (imaging) and navigation.*

*Taught in English by institutional (CNES, ONERA) and industrial (THALES, AIRBUS) stakeholders in the sector, the academic side of the program is balanced out between theoretical courses and practical work sessions that apply the software suites used by the various players (I4D, Orfeo Tool Box). This provides an understanding of the possibilities offered by spatial data and the acquisition of the technical fundamentals required for a future status as an expert.*

**BASTIEN DELPRAT**  
Graduated 2018

## Admission procedures

### Advanced Masters

#### Academic requirements

A master's degree, or an equivalent degree in science or engineering (or in management for advanced masters in management), or bachelor degree completed by 3 years of professional experience

#### Application website :

<http://admissionsmasters.isae-supaero.fr>

### Selection and admission





#### Selection and admission are made by an admission committee:

Possible interviews can be organized if necessary

#### Deadlines for application:

Several admission committees scheduled from January to July, see schedule on our website

### Language requirements for Masters in English

<b>TOEFL (IBT)</b>	or	<b>TOEIC</b>	or	<b>IELTS</b>	or	<b>CAE/FCE</b>
						
<b>85 points</b>		<b>785 points</b>		<b>6.5 points</b>		<b>170 points</b>

### Language requirements for Masters in French

#### Language qualification requested

Score B2-Common - European Framework of Reference for Languages

## Your contacts

**Philippe GALAUP,**  
Head of recruitment and Contractual  
Relations  
Phone: +33 (5) 61 33 80 27

**Catherine DUVAL,**  
Senior Admission Advisor/Aerospace  
sector  
Phone: +33 (5) 61 33 80 37

[info-master@isae-supaero.fr](mailto:info-master@isae-supaero.fr)

[www.isae-supaero.fr](http://www.isae-supaero.fr)